MDS-MX101

SERVICE MANUAL

AEP Model
UK Model
E Model
Tourist Model

MDS-MX101 is the optional mini disc deck that can be used only with section CMT-101.

U.S and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	MDS-S38
MD Mechanism Type	MDM-3B
Optical Pick-up Name	KMS-260A/J1N

SPECIFICATIONS

System	MiniDisc digital audio system
Disc	MiniDisc
Laser	Semicondu2ctor laser (λ = 780nm)
Laser output power	Less than 44.6 μW* *This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.
Laser diodo properties	Material: GaAIAs
Revolutions (CLV)	Approx. 400 rpm to 900 rpm
Error correction	Advance Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency	44.1 kHz
Modulation system	EFM (Eight-to-Fourteen Modulation)
Number of channels	2 stereo channels
Frequency response	5 to 20,000 Hz
Signal-to-noise ratio	More than 92 dB (during playback)
Wow and flutter	Below measurable limit
DIGITAL IN (MD OPTICAL IN) input/ DIGITAL OUT (MD OPTICAL OUT) output	Square optical connector jack, Optical wave length 660 nm
Dimeansions	Approx. 142 × 125 × 235 mm (w/h/d) incl. projecting parts and controls
Mass	Approx. 2 kg
Supplied accessory	Digital optical cable (1)

MINI DISC DECK

MICROFILM

SONY®

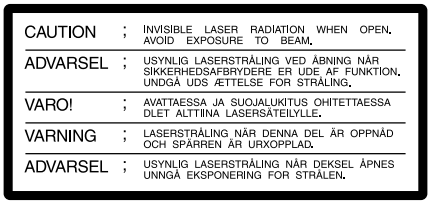
CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

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NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to the manufacturer's instructions.

SECTION 1
SERVICING NOTES

1-1. CHECK MODE OF FLUORESCENT INDICATOR TUBE, BUTTONS, AND LEDS

Setting the Check Mode:

This mode is activated by inserting the AC power cord of the PFJ-1 power supply jig (or HCD-101) into AC wall outlet while pressing the REC button and the CHARACTER button. When this mode started, the fluorescent indicator tube and LEDs are all turned on.

1-1-1. Button Check Mode (Key Check)

When the respective buttons (12 buttons are used in total) are pressed while all tube and LEDs are turned on, the display area which corresponds to the pressed button, is turned off. This mode ends by pressing the CD SYNC button at last.

1-1-2. Fluorescent Indicator Tube Check Mode (Segment Check)

When the button check mode ends, [Segment Check] appears and the respective dots of the 12-digit, 5 x 7 segment fluorescent tube are lit every other dot. This mode ends by pressing the CD SYNC button at last.

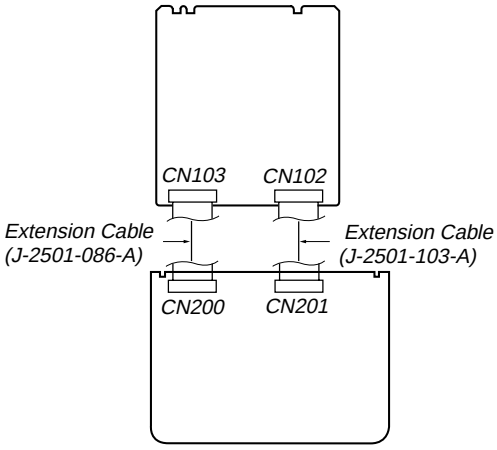
1-1-3. Fluorescent Indicator Tube Check Mode (Scroll Check)

When the segment check ends, [Scroll Check] appears. When the SCROLL button is pressed, the displayed letter scrolls to the left one letter after another. When all letters are scrolled, [end] appears. Press YES button to return to the normal operating mode.

1-2. EXTENSION CABLE

The two types of extension cable are available during repair of this set. The extension cable (part code no. J-2501-086-A) is available to connect CN103 of the BD board and CN200 of the DIGITAL board. The extension cable (part code no. J-2501-103-A) is available to connect CN102 of the BD board and CN201 of the DIGITAL board.

— BD board (Conductor side) —



— DIGITAL board (Component side) —

SERVICENG NOTE

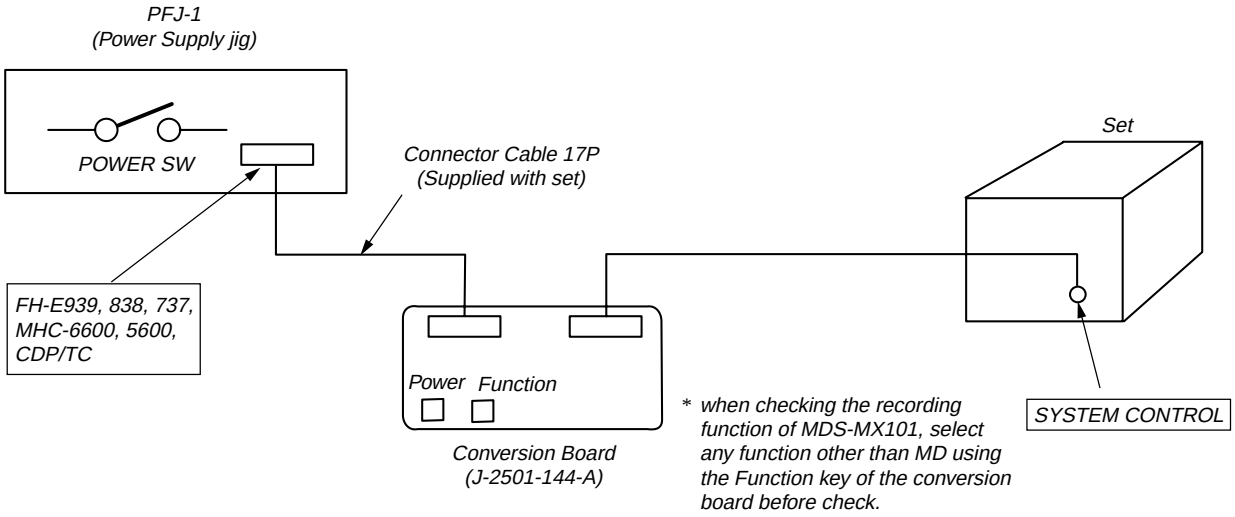
- Supplying power during servicing

  This equipment cannot operate without using a separate power supply. Connect the machine to the HCD-101. To apply power set the SYSTEM POWER switch of HCD-101.

  When other units are not available use the PFJ-1 power supply jig.

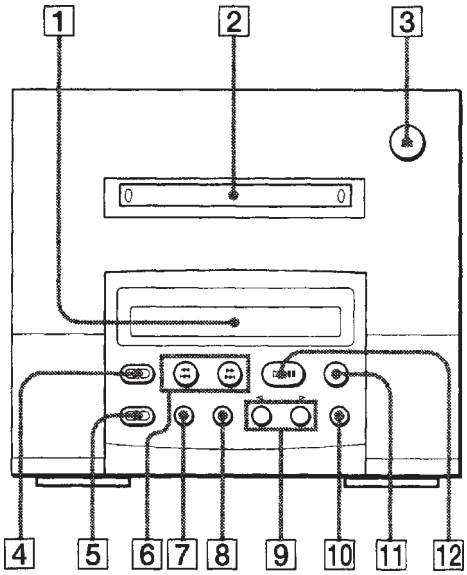
  When using the PFJ-1, press the POWER switch of the conversion board to turn on the power.

[Connection Diagram]



SECTION 2
GENERAL

This section is extracted from instruction manual.

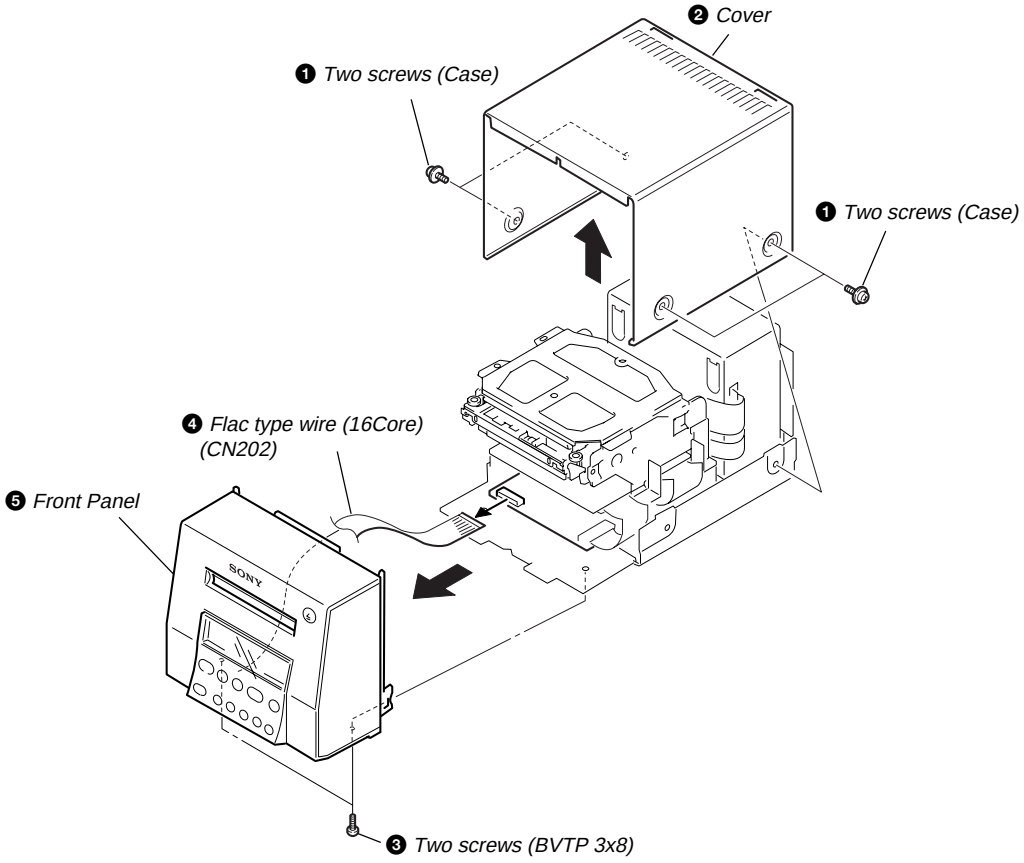


1 Display window
2 MD slot
3 ⏏ EJECT button
4 ● REC button
5 CD SYNC button
6 ⏮ ◀◀ (finding a point in a track/ fast backward) button
▶▶ ⏭ (finding a point in a track/ fast forward) button
7 EDIT/NO button
8 YES button
9 SCROLL button, DISPLAY button/ ←CURSOR→ button
10 CHARACTER button
11 ■ (stop) button
12 ▶II (play/pause) button

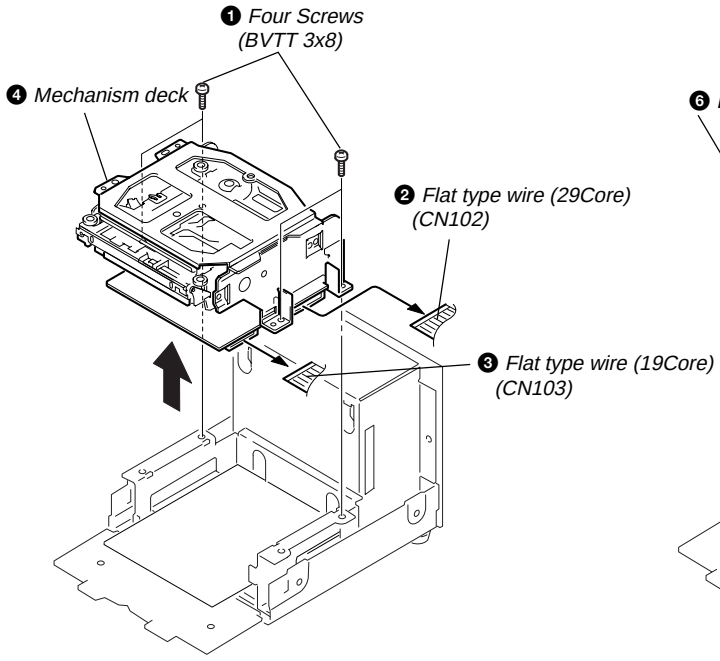
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

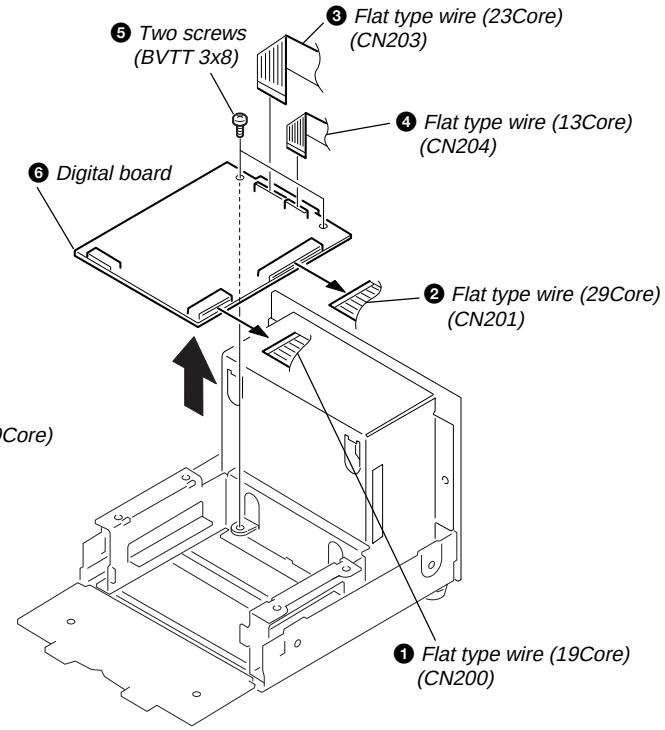
3-1. COVER AND FRONT PANEL



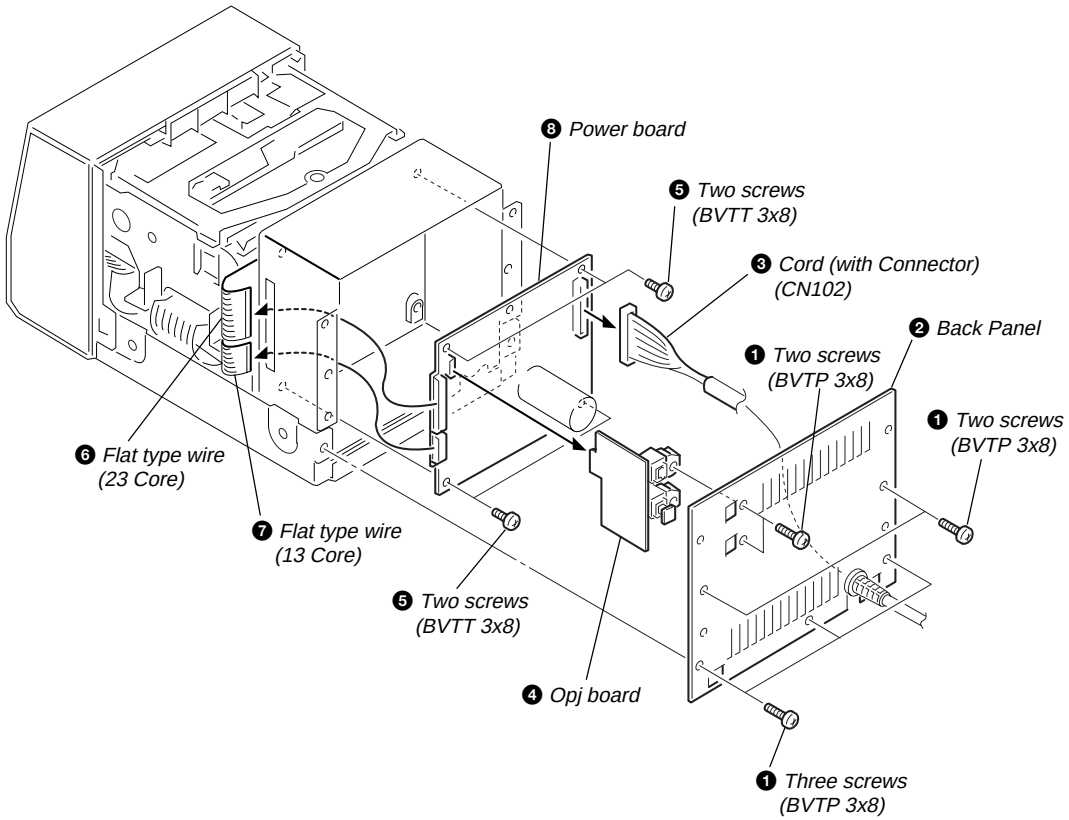
3-2. MECHANISM DECK



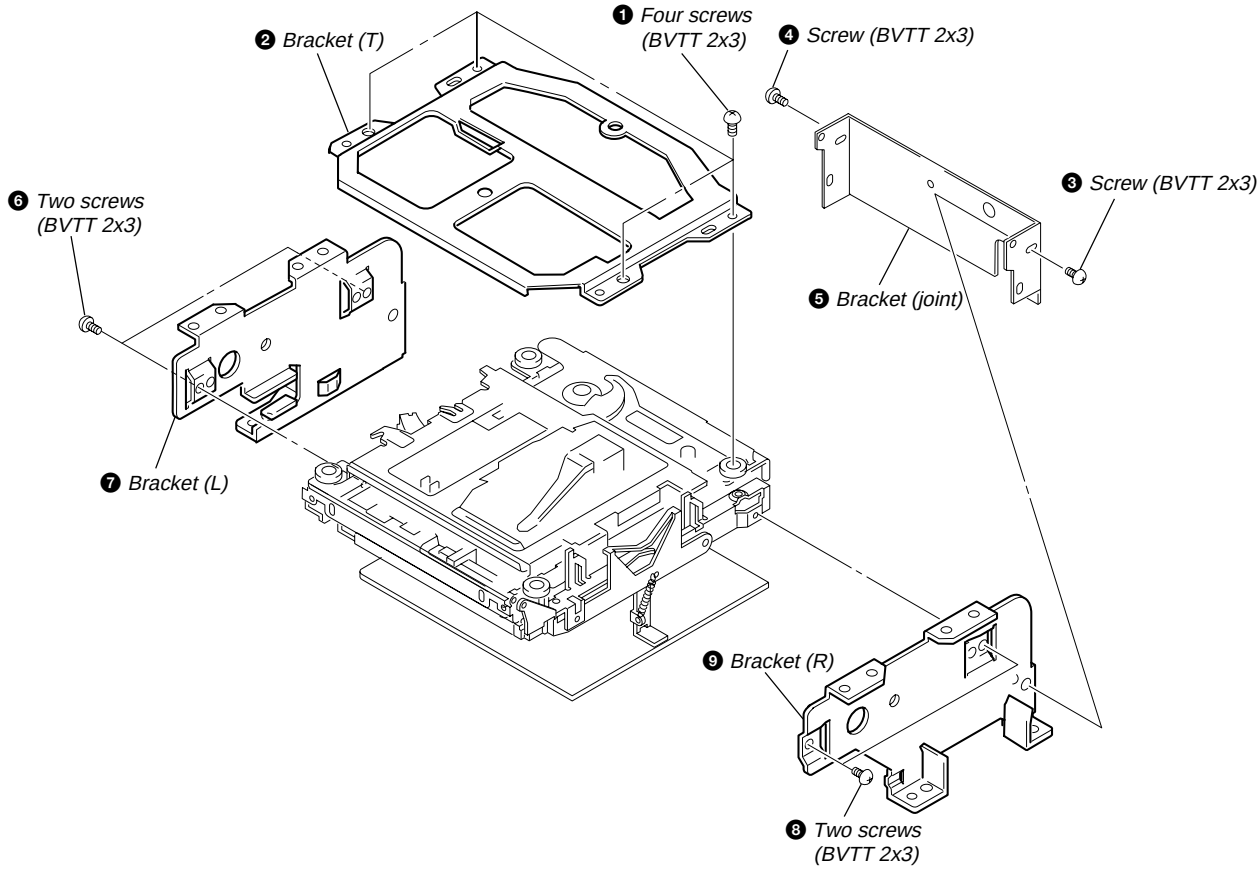
3-3. DIGITAL BOARD



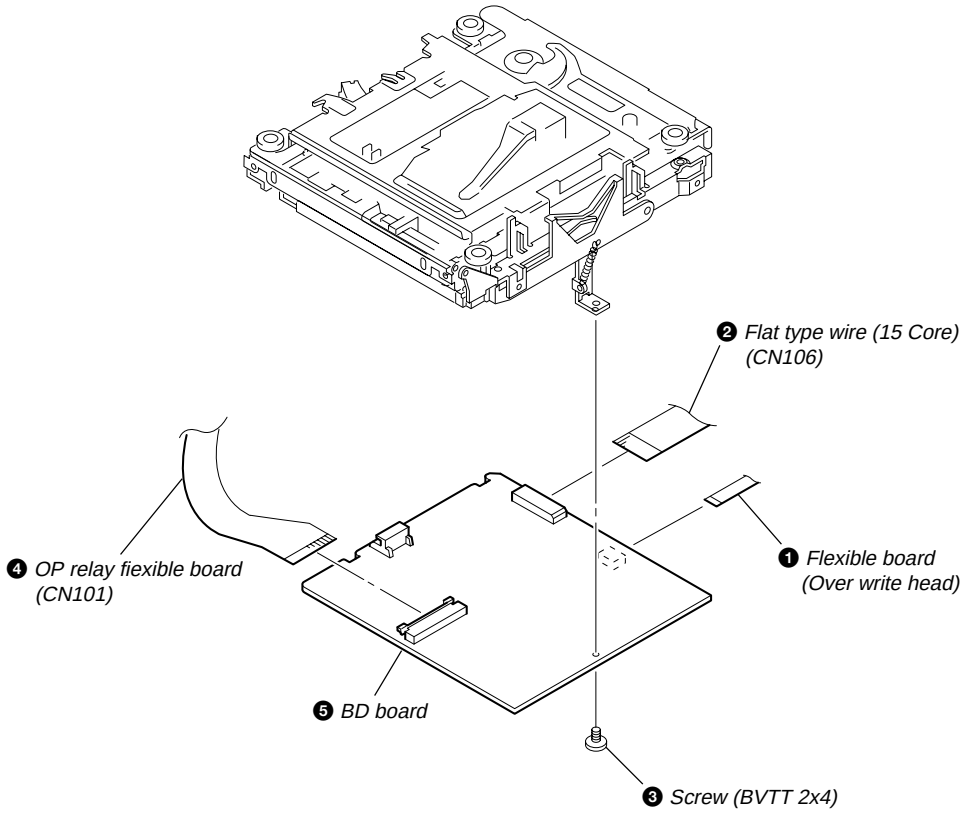
3-4. OPJ BOARD, POWER BOARD


❽ Power board
❺ Two screws (BVTT 3x8)
❸ Cord (with Connector) (CN102)
❷ Back Panel
❶ Two screws (BVTP 3x8)
❶ Two screws (BVTP 3x8)
❻ Flat type wire (23 Core)
❼ Flat type wire (13 Core)
❺ Two screws (BVTT 3x8)
❹ Opj board
❶ Three screws (BVTP 3x8)

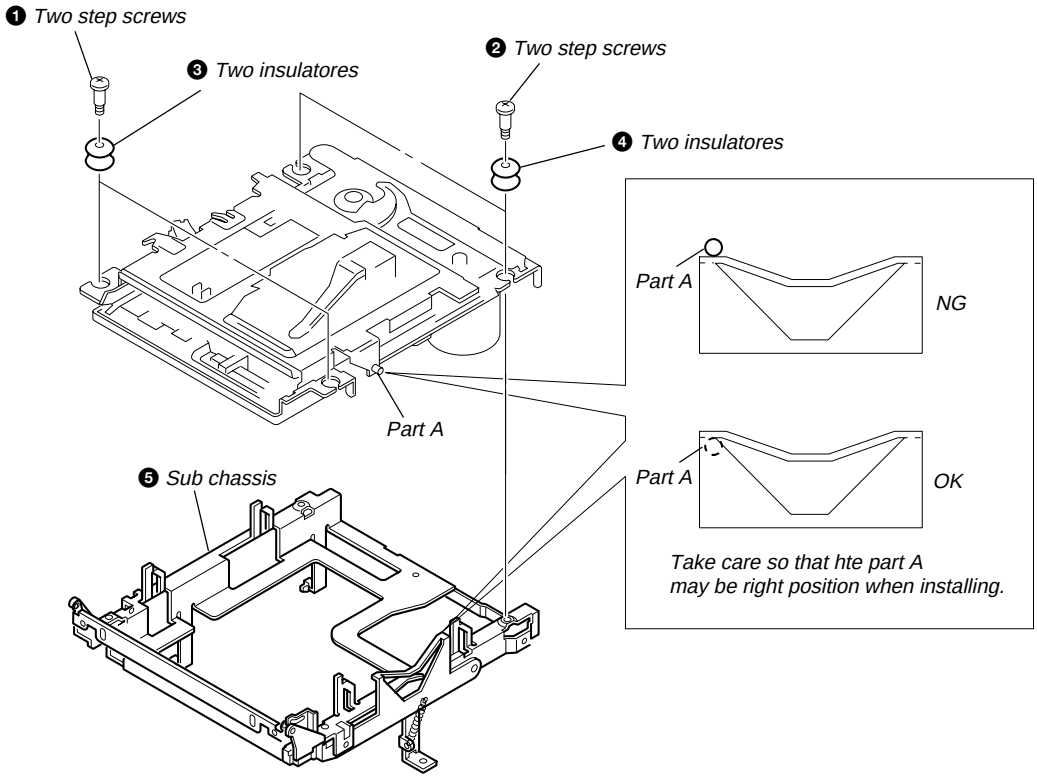
3-5. BRACKET (T), (L) AND (R)



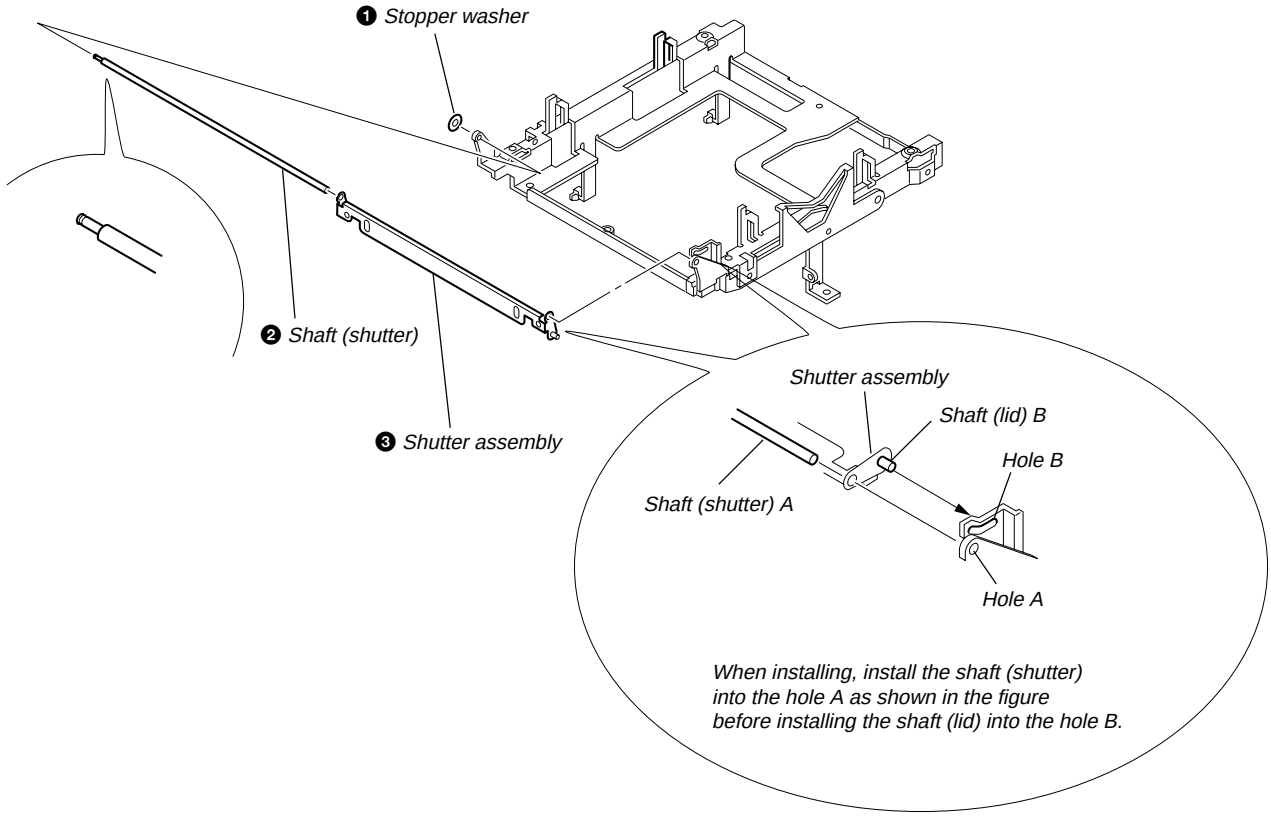
3-6. BD BOARD



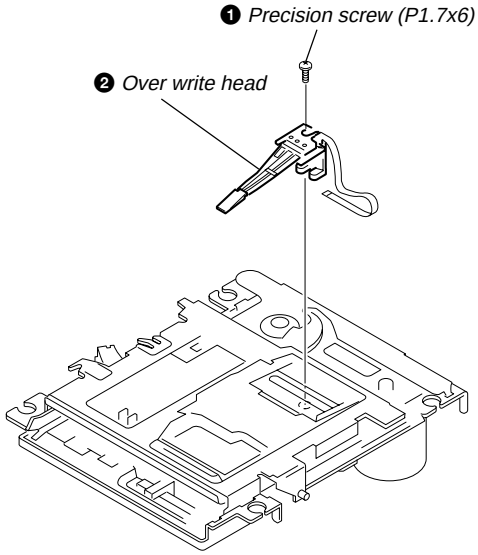
3-7. SUB CHASSIS



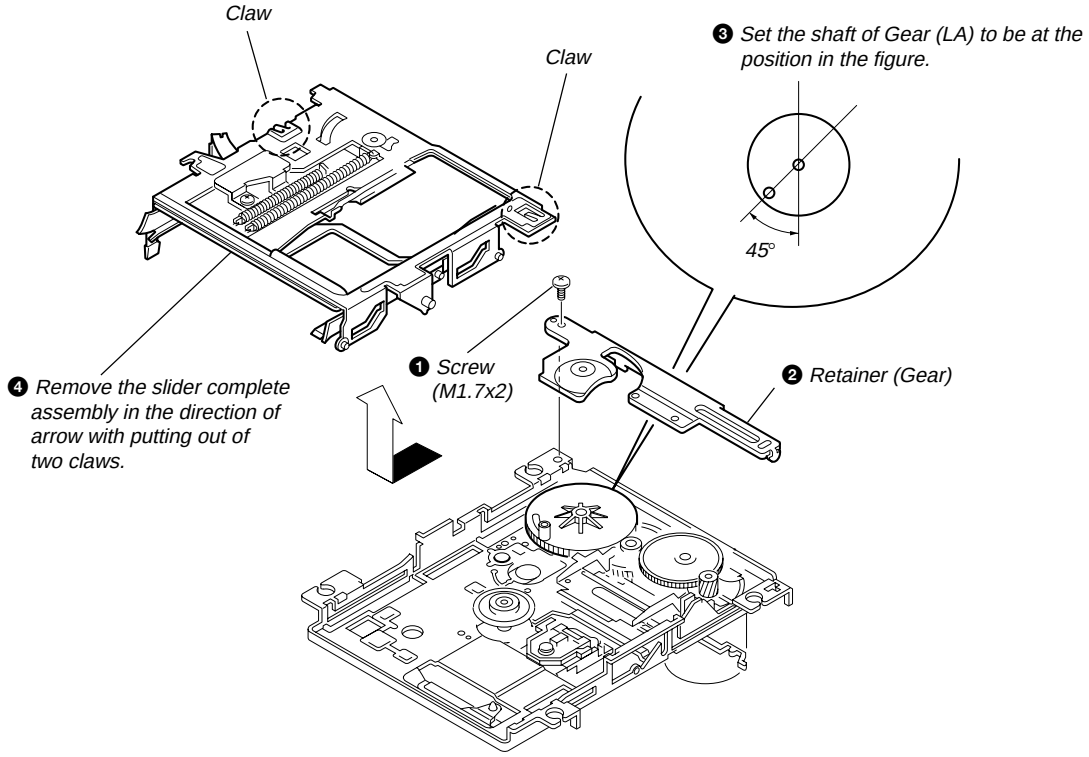
3-8. SHUTTER ASSEMBLY


❶ Stopper washer
❷ Shaft (shutter)
❸ Shutter assembly
Shutter assembly
Shaft (lid) B
Hole B
Shaft (shutter) A
Hole A
When installing, install the shaft (shutter)
into the hole A as shown in the figure
before installing the shaft (lid) into the hole B.

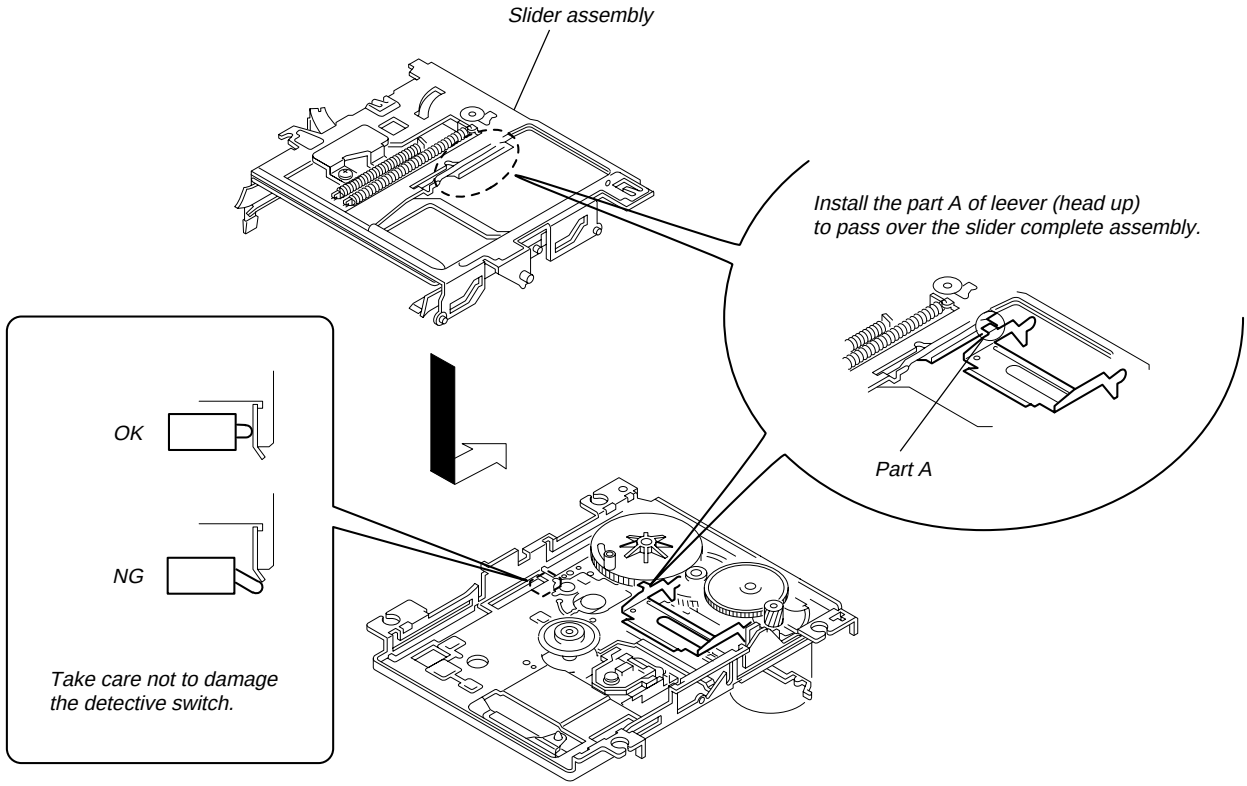
3-9. OVER WRITE HEAD



3-10 . SLIDER COMPLETE ASSEMBLY


Claw
Claw
❸ Set the shaft of Gear (LA) to be at the position in the figure.
45°
❹ Remove the slider complete assembly in the direction of arrow with putting out of two claws.
❶ Screw (M1.7x2)
❷ Retainer (Gear)

• Note for Installation of Slider Complete Assembly


Slider assembly
Install the part A of leever (head up) to pass over the slider complete assembly.
Part A
OK
NG
Take care not to damage the detective switch.

SECTION 4
TEST MODE

4-1. PRECAUTIONS FOR USE OF TEST MODE

1. As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it. Even if the ⏏ button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating. Therefore, it will be ejected while rotating. Be sure to press the ⏏ button after pressing the EDIT/NO button and the rotation of disc is stopped.
2. The erasing-protection tab is not detected in the test mode. Therefore, operating in the recording laser emission mode and pressing the ● REC button, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode.

4-1-1. Recording Laser Emission Mode and Operating Button

1. Continuous recording mode (CREC MODE)
2. Traverse adjustment mode (EFBAL ADJUST)
3. Laser power adjustment mode (LDPWR ADJUST)
4. Laser power check mode (LDPWR CHECK)
5. When pressing the ● REC button.

4-2. SETTING THE TEST MODE

With the AC power cord of the PFJ-1 power supply jig (or HCD-101) removed from AC outlet, press the ▶▶ ▶▶| button and CHARACTER button simultaneously, and connect the AC power cord to the AC wall outlet. The test mode is activated.

4-3. RELEASING THE TEST MODE

Press the ⏏ button, and the power is turned OFF (standby status) and the set becomes ready for normal operation.

4-4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the |◀◀ ◀◀ button, ▶▶ ▶▶| button, YES button, and EDIT/NO button. The functions of these buttons are as follows.

Table 4-1.

Button	Function
|◀◀ ◀◀ button	Changes parameters and modes.
▶▶ ▶▶| button	
YES button	Proceeds onto the next steps. Finalizes input.
EDIT/NO button	Returns to previous step. Stops operations
CD SYNC button	Confirms the entry.

4-5. SELECTING THE TEST MODE

Thirteen test modes are selected by pressing the |◀◀ ◀◀ button, and ▶▶ ▶▶| button.

Table 4-2.

Display	Contents
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
LDPWR CHECK	Laser power check
EFBAL ADJUST	Traverse (E-F balance) adjustment
FBIAS ADJUST	Focus bias adjustment
FBIAS CHECK	Focus bias check
CPLAY MODE	Continuous playback mode
CREC MODE	Continuous recording mode
DETRK CHECK	Detrack check
Scurve CHECK	S curve check (*1)
EEP MODE	Non-volatile memory mode (*1)
MANUAL CMD	Manual command transfer mode (*1)
SVDATA READ	Data reading out mode (*1)

- For detailed description of each adjustment mode, refer to the "5. ELECTRICAL ADJUSTMENTS".
- If a different adjustment mode has been selected by mistake, press the EDIT/NO button to exit from it.

*1: The Scurve CHECK, EEP MODE, MANUAL CMD and SVDATA READ are not used in servicing. If set accidentally, press the EDIT/NO button immediately to exit it.

4-6. OPERATING THE CONTINUOUS PLAYBACK MODE

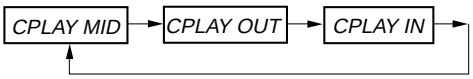
4-6-1. Entering the Continuous Playback Mode

1. Set the MO or CD disc in the unit. (Whichever recordable discs or discs for playback only are available.)
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CPLAY MODE".
3. Press the YES button to change the display to "CPLAY MID".
4. When access completes, the display changes to "C1= □□□□ AD= □□".

Note: The numbers " □ " displayed show you error rates and ADER.

4-6-2. Changing the Parts to be Played-back

1. Press the YES button during continuous playback to change the display as below.



2. When access completes, the display changes to "C1= □□□□ AD= □□ ".

Note: The numbers " □ " displayed show you error rates and ADER.

4-6-3. Exitting the Continuous Playback Mode

1. Press the EDIT/NO button. The display will change to "CPLAY MODE".
2. Press the ⏏ button and remove the disc.

Notes:

1. The playback start address for IN, MID, and OUT are as follows.
   In case you want to display the address of the playback position on the display, press the DISPLAY button and display "CPLAY (□□□□)".
   IN : 40h cluster
   MID : 300h cluster
   OUT : 700h cluster
2. The EDIT/NO button can be used to stop playing anytime.

4-7. OPERATING THE CONTINUOUS RECORDING MODE

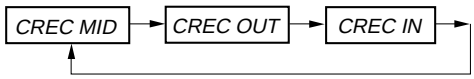
4-7-1. Entering the Continuous Recording Mode

1. Set the MO disc in the unit.
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CREC MODE".
3. Press the YES button to change the display to "CREC MID".
4. When access completes, the display changes to "CREC (□□□□)" and, SHUFFLE and REPEAT Turn on.

Note: The numbers "□" displayed shows you the recording position address.

4-7-2. Changing the Parts to be Recorded

1. When the YES button is pressed access is completed, the display changes as below. (See Note 6.)



2. When access completes, the display changes to "CREC (□□□□)" and SHUFFLE and REPEAT lightup.

Note: The numbers "□" displayed shows you the recording position address.

4-7-3. Ending the Continuous Recording Mode

1. Press the EDIT/NO button. The display will change to "CREC MODE" and PRESET goes off.
2. Press the ⏏ button and remove the disc.
   (MONO turns on once and turns off immedia Tely.)

Notes:

1. The recording start address for IN, MID, and OUT are as follows.
   IN : 40h cluster
   MID : 300h cluster
   OUT : 700h cluster
2. The EDIT/NO button can be used to stop recording anytime.
3. During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.
4. Do not perform continuous recording for long periods of time above 5 minutes.
5. During continuous recording, be careful not to apply vibration.
6. After access is completed, the recorded portions cannot be moved any more.

4-8. EEP MODE

This mode reads and writes the contents of the non-volatile memory. It is not used in servicing.
If set accidentally, press the EDIT/NO button immediately to exit it.

4-9. FUNCTIONS OF OTHER BUTTONS

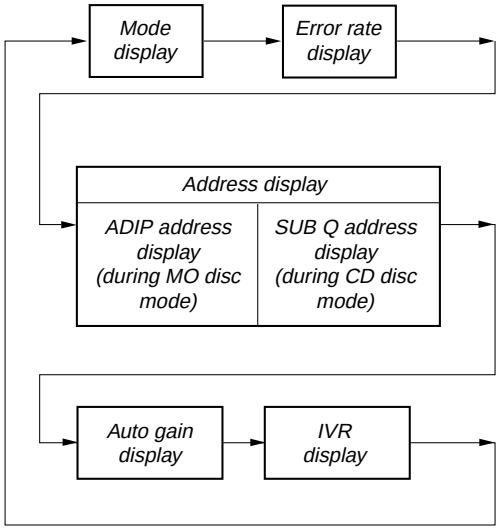
Table 4-3.

Button	Function
▶II	• Sets continuous playback when pressed in the STOP state. (servo all on) • When pressed during continuous playback, the tracking and sled servo turns on/off.
■	Stop continuous playback and continuous recording.
CHARACTER	The sled moves to the outer circumference only when this is pressed.
SCROLL	The sled moves to the inner circumference only when this is pressed.
● REC	Turns recording on/off when pressed during continuous playback.
DISPLAY	Switches the diaplay when pressed.
⏏	Disc eject

Note: The erasing-protection tab in not detected during the test mode. Recording will start regardless of the position of the erasing-protection tab when the ● REC button is pressed.

4-10. TEST MODE DISPLAYS

Each time the DISPLAY button pressed, the display changes in the following order.



Note: Auto gain display and IVR display are not used in servicing.

1. MODE display
   Displays “TEMP ADJUST”, “CPLAY MODE”, etc..

2. Error rate display
   Error rates are displayed as follows.
   C1= □□□□ AD= □□
   C1= : Indicates C1 error
   AD= : Indicates ADER

3. Address display
   Address are displayed as follows.
   h= □□□□ a= □□□□ (in MO disc)
   h= □□□□ s= □□□□ (during CD disc)
   h=: Header address
   a=: ADIP address
   s=: SUB Q address

Note: “—” is displayed when the address cannot be read.

4. Auto gain display
   Auto gain are displayed as follows.
   AGF= □□ T=
   F= Focus auto gain acquired value
   T= Tracking auto gain acquired value

4-11. MEANINGS OF OTHER DISPLAYS

Table 4-4.

Display indication	Contents		
	Light On	Off	Blinking
1			
MONO			
SHUFFLE	CLV locked state	CLV unlocked state	
TRACK	Pit mode	Groove mode	
DISC	High reflection rate disc	Low reflection rete disc	
PROGRAM	Spindle servo CLV-S (pill-in mode)	Spindle servo CLV-A (playback mode)	
REPEAT	ABCD adjustment completed	ABCD adjustment not yet completed	
REC LEVEL OVER	• Focus auto gain successful • Tracking auto gain successful		• Focus auto gain successful • Tracking auto gain failed
D-IN			
A-IN			
TOC-EDIT			

SECTION 5
ELECTRICAL ADJUSTMENTS

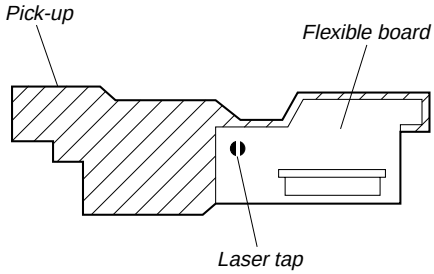
5-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eyesight.

5-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it.

Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also tale adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

5-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

Table 5-1.

	Optical Pick-up	BD board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	○	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

2) Set the test mode when performing adjustments.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Test disc (CD for playback only)
     TDYS-1 (part No. 4-963-646-01)
   - Laser power meter
     LPM-8001 (part No. J-2501-046-A)
   - Oscilloscope (Measure after preforming CAL of prove.)
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
   (VC and ground will become short-circuited)

5-4. CREATING MO CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a MO continuous recording disc.

1. Insert a MO disc (blank disc) commercially available.
2. Press the [I◀◀ ◀◀] button or [▶▶ ▶▶I] button and display "CREC MODE".
3. Press the [YES] button and display "CREC MID".
   "CREC (0300)" is displayed for a moment and recording starts.
4. Complete recording within 5 minutes.
5. Press the [EDIT/NO] button and stop recording.
6. Press the [⏏] button and remove the MO disc.

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note: Be careful not to apply vibration during continuous recording.

5-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25°C reference data.

Notes:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method:

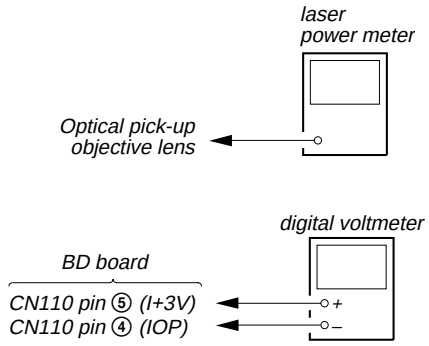
1. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "TEMP ADJUST".
2. Press the YES button and select the "TEMP ADJUST" mode.
3. "TEMP = □□ " and the current temperature a data will be displayed.
4. To save the data, press the YES button.
   When not saving the data, press the EDIT/NO button.
5. When the YES button is pressed, "TEMP= □□ SAVE" will be displayed for some time, followed by "TEMP ADJUST".
   When the EDIT/NO button is pressed, "TEMP ADJUST" will be displayed immediately.

Specifications:

The temperature should be within "E0-EF", "F0-FF", "00-0F", "10-1F" and "20-2F".

5-6. LASER POWER ADJUSTMENT

Connection:



Adjusting Method:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the CHARACER button or SCROLL button and move the optical pick-up.)
   Connect the digital voltmeter to CN110 pin ⑤ (I+3V) and CN110 pin ④ (IOP) of the BD board.
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "LDPWR ADJUST".
   (Laser power: for adjustment)
3. Press the YES button and display "LD 0.9 mW $ □□".
4. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button so that the reading of the laser power meter becomes 0.82 to 0.91 mW.
   Set the range control on the laser power meter to 10 mW, then press the YES button to save the adjustment result in the non-volatile memory.
   ("LD SAVE $ □□" will be displayed for a moment.)
5. Then "LD 7.0 mW $ □□ "will be displayed.
6. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the YES button and save the adjustment result in the non-volatile memory.
   ("LD SAVE $ □□" will be displayed for a moment.)

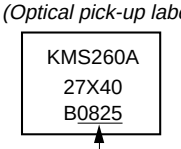
Note: Do not perform the emission with 7.0 mW more than 15 seconds continuously.

7. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "LDPWR CHECK".
8. Press the YES button and display "LD 0.9 mW $ □□".
   Check that the reading of the laser power meter becomes 0.80 to 0.96 mW.
9. Press the YES button and display "LD 7.0 mW $ □□".
   Check that the reading of the laser power meter and digital voltmeter satisfy the specified value.

Specification:

Laser power meter reading : 7.0 ± 0.2 mW
Digital voltmeter reading : Optical pick-up displayed value ±10%

(Optical pick-up label)



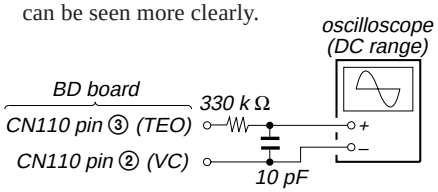
IOP=82.5 mA in this case
IOP (mA) = Digital voltmeter reading (mV)/1 (Ω)

10. Press the EDIT/NO button and display "LDPWR CHECK", and stop the laser emission.
    (The EDIT/NO button is effective at all times to stop the laser emission.)

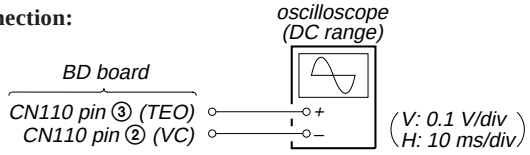
5-7. TRAVERSE (E-F BALANCE) ADJUSTMENT

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



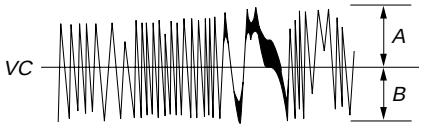
Connection:



Adjusting Method:

1. Connect an oscilloscope to CN110 pin ③ (TEO) and CN110 pin ② (VC) of the BD board.
2. Load a MO disc (any available on the market). (Refer to note 1.)
3. Press the CHARACTER button or SCROLL button and move the optical pick-up to outer circumference outside the pit area.
4. Press the ⏮ ◀◀ button or ▶▶ ⏭ button and display "EFBAL ADJUST".
5. Press the YES button and display "EFB= □ MO-R".
   (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Press the ⏮ ◀◀ button or ▶▶ ⏭ button so that the waveforms of the oscilloscope becomes the specified value. (When the ⏮ ◀◀ button or ▶▶ ⏭ button is pressed, the "□□" of "EFB=□ MO-R" changes and the waveform changes.)
   In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (MO read power traverse adjustment)

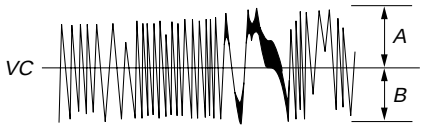
(Traverse Waveform)



specification: A=B

7. Press the YES button, and save the result of adjustment to the non-volatile memory.
   ("EFB=□ SAVE" will be displayed for a moment. Then "EFB=□ MO-W" will be displayed.)
8. Press the ⏮ ◀◀ button or ▶▶ ⏭ button so that the waveforms of the oscilloscope becomes the specified value. (When the ⏮ ◀◀ button or ▶▶ ⏭ button is pressed, the "□□" of "EFB=□ MO-W" changes and the waveform changes.)
   In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.
   (MO write power traverse adjustment)

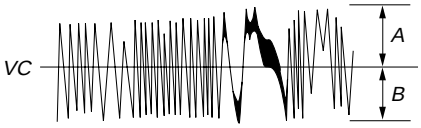
(Traverse Waveform)



specification: A=B

9. Press the YES button, and save the result of adjustment to the non-volatile memory.
   ("EFB=□ SAVE" will be displayed for a moment. Then "EFB=□ MO-P" will be displayed.)
10. The optical pick-up moves to the pit area automatically and servo is locked.
11. Press the ⏮ ◀◀ button or ▶▶ ⏭ button until the waveforms of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

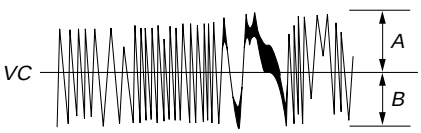
(Traverse Waveform)



specification: A=B

12. Press the YES button, and save the result of adjustment to the non-volatile memory.
    ("EFB=□ SAVE" will be displayed for a moment. Then "EFBAL CD" will be displayed.)
    The disc stops rotating automatically.
13. Press the ⏏ button and remove the MO disc.
14. Load the test disc TDYS-1.
15. Press the YES button and display "EFB=□ CD".
    Servo is imposed automatically.
16. Press the ⏮ ◀◀ button or ▶▶ ⏭ button until the waveforms of the oscilloscope moves closer to the specified value.
    In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)



specification: A=B

17. Press the YES button, and save the result of adjustment to the non-volatile memory.
    ("EFB=□ SAVE" will be displayed for a moment. Then "EFBAL ADJUST" will be displayed.)
18. Press the ⏏ button and remove the test disc TDYS-1.

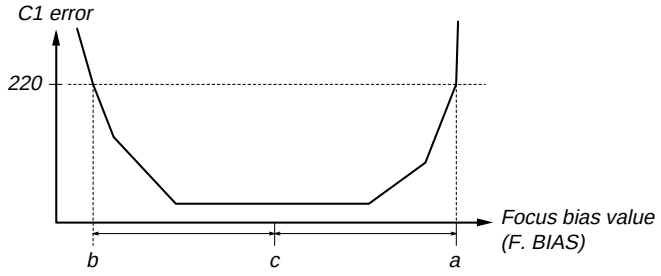
5-8. FOCUS BIAS ADJUSTMENT

Adjusting Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".).
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CPLAY MODE".
3. Press the YES button and display "CPLAY MID".
4. Press the EDIT/NO button when "C1= □□□□ AD= □□ " is displayed.
5. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "FBIAS ADJUST".
6. Press the YES button and display "□□□□/□□ a=□□".
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a=] indicate the focus bias value.
7. Press the ▶▶ ▶▶| button and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
8. Press the YES button and display "□□□□/□□ b=□□".
9. Press the |◀◀ ◀◀ button and find the focus bias value at which the C1 error rate becomes 220. (Refer to note 2.)
10. Press the YES button and display "□□□□/□□ c=□□".
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the YES button.
12. If the "(□□)" in "□□-□□-□□ (□□)" is above 20, press the YES button.
    If below 20, press the EDIT/NO button and repeat the adjustment from step 2 again.
13. Press the EDIT/NO button and press the ⏏ button to remove the continuously recorded disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position c is automatically calculated from points a and b.

Note 2: As the C1 error rate changes, perform the adjustment using the average vale.



5-9. ERROR RATE CHECK

5-9-1. CD Error Rate Check

Checking Method:

1. Load a test disc TDYS-1.
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CPLAY MODE".
3. Press the YES button and display "CPLAY MID".
4. "C1= □□□□ AD= □□" is displayed.
5. Check that the C1 error is below 20.
6. Press the EDIT/NO button, stop playback, press the ⏏ button, and remove the test disc.

5-9-2. MO Error Rate Check

Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".).
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CPLAY MODE".
3. Press the YES button and display "CPLAY MID".
4. "C1=□□□□ AD=□□" is displayed.
5. If the C1 error is below 50, check that ADER is 00.
6. Press the EDIT/NO button, stop playback, press the ⏏ button, and remove the continuously recorded disc.

5-10. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

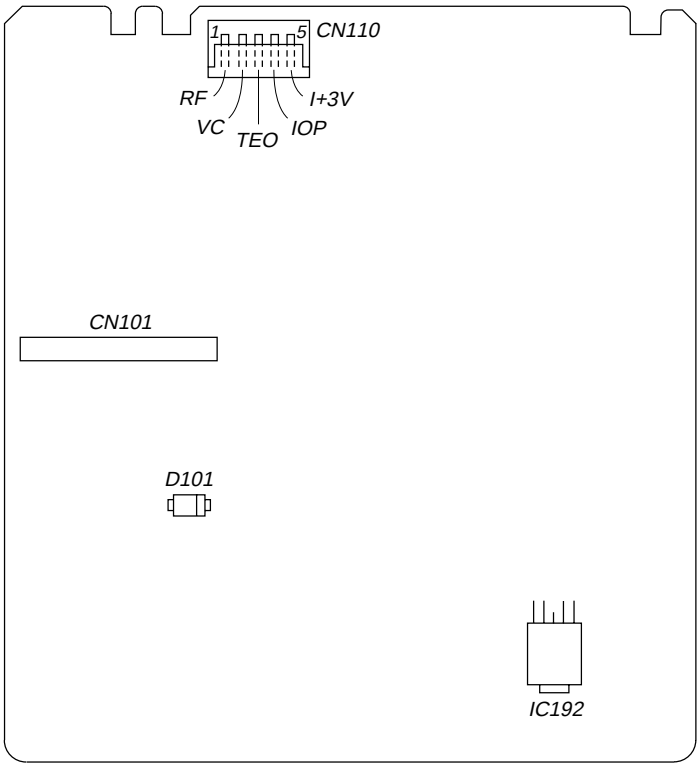
Checking Method:

1. Load a continuously recorded disc (Refer to "5-4. Creating MO Continuously Recorded Disc".).
2. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "CPLAY MODE".
3. Press the YES button and display "CPLAY MID".
4. Press the EDIT/NO button when "C1=□□□□ AD=□□" is displayed.
5. Press the |◀◀ ◀◀ button or ▶▶ ▶▶| button and display "FBIAS CHECK".
6. Press the YES button and display "□□□□/□□ c=□□".
   The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c=] indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the YES button and display "□□□□/□□ b=□□".
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
8. Press the YES button and display "□□□□/□□ a=□□ ".
   Check that the C1 error is not below 220 and ADER is not above 00 every time.
9. Press the EDIT/NO button, next press the ⏏ button, and remove the continuously recorded disc.

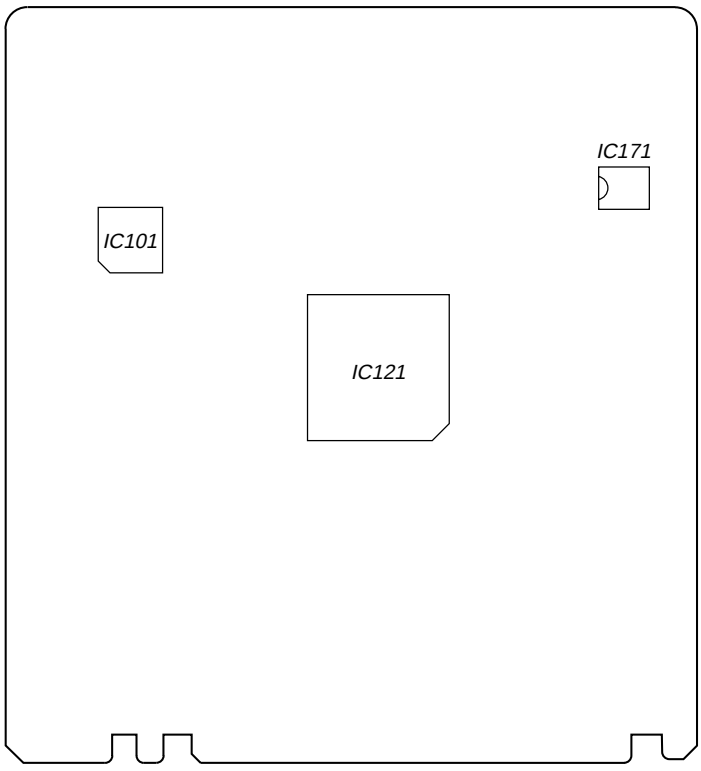
Note 1: If the C1 error and ADER are above 00 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

5-11. ADJUSTING POINTS AND CONNECTING POINTS

— BD BOARD (SIDE A) —

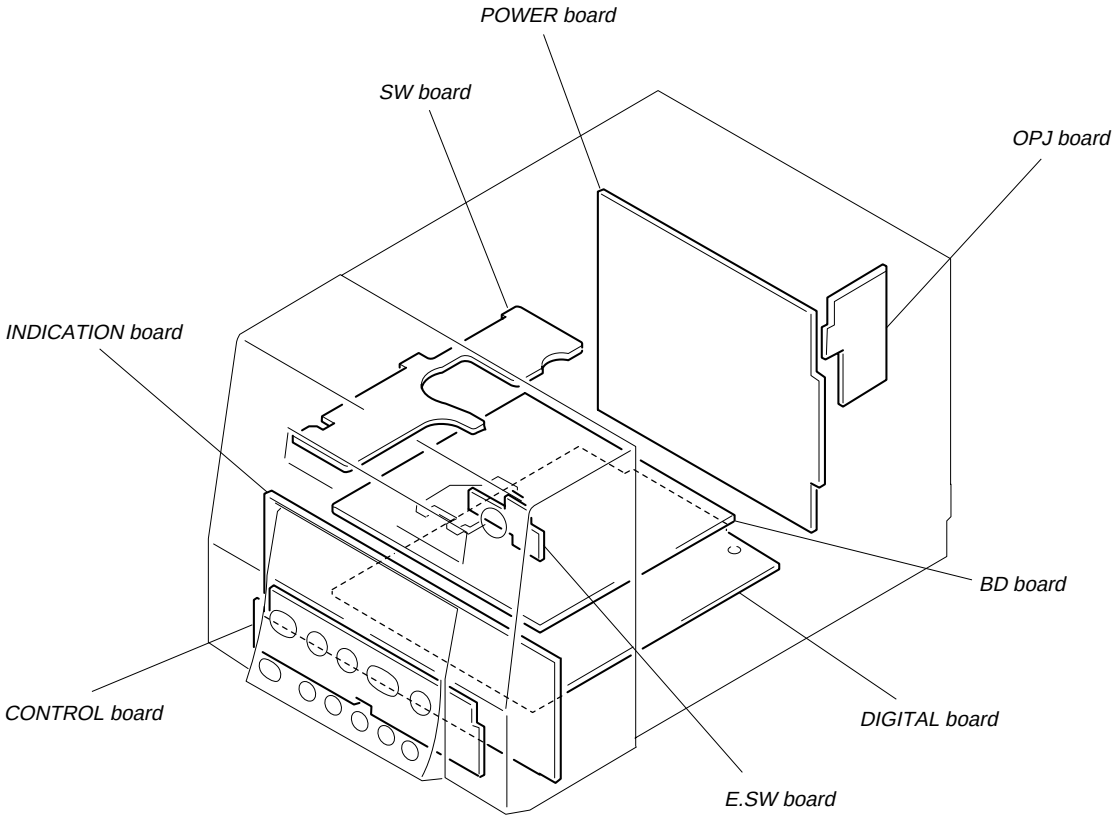


— BD BOARD (SIDE B) —

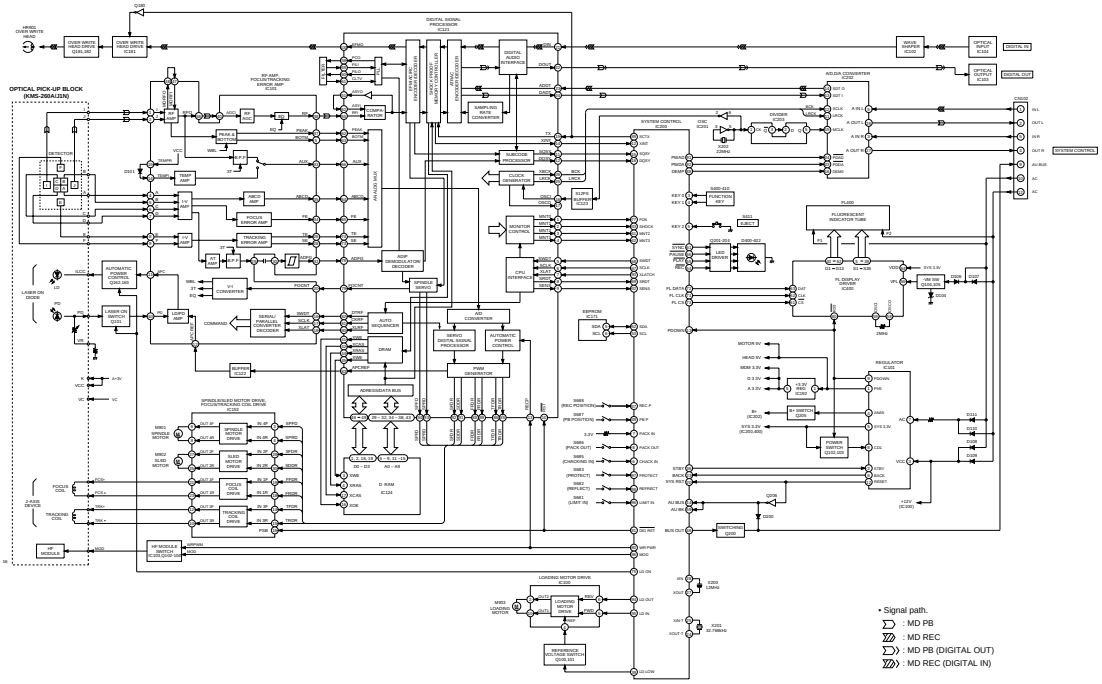


SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



6-2. BLOCK DIAGRAM



6-3. PRINTED WIRING BOARD — MD MECHANISM DECK SECTION —

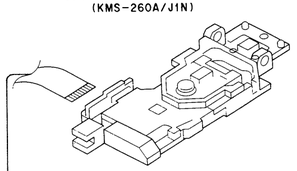
• **Semiconductor Location**

Ref. No.	Location
D101	E-4
D181	C-9
D183	C-10
IC101	E-13
IC103	B-14
IC121	D-11
IC122	C-6
IC123	D-10
IC124	E-12
IC152	B-11
IC171	E-10
IC181	C-10
IC192	F-7
Q101	C-13
Q102	B-14
Q103	B-13
Q104	B-14
Q162	B-13
Q163	B-14
Q180	C-8
Q181	B-9
Q182	B-10

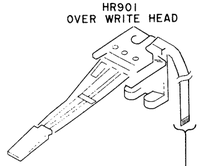
Note:
- ——— : parts extracted from the conductor side.
- ○ : Through hole.
- ▬ : Parts on the side wich is seen.

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

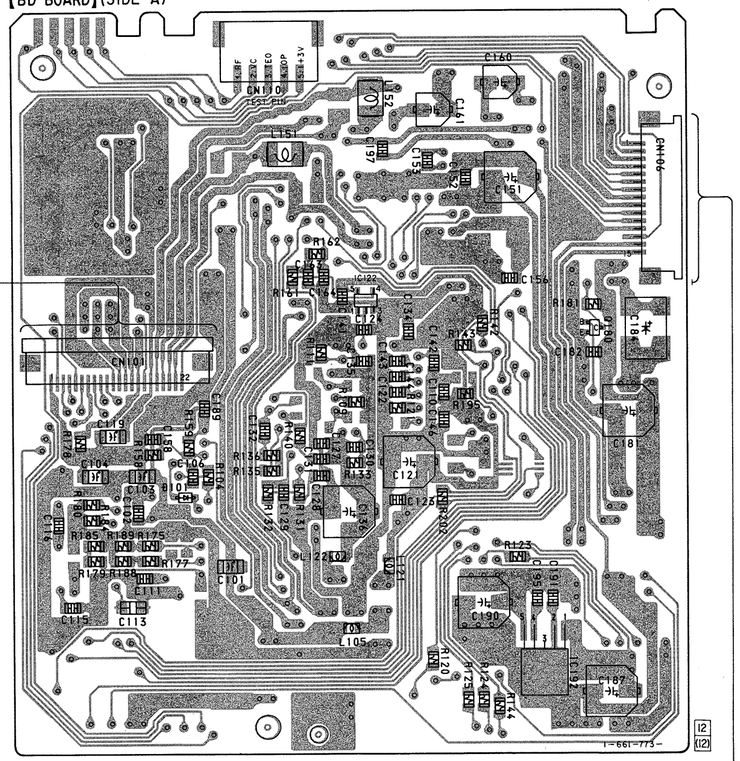
OPTICAL PICK-UP BLOCK (KMS-260A/J1N)



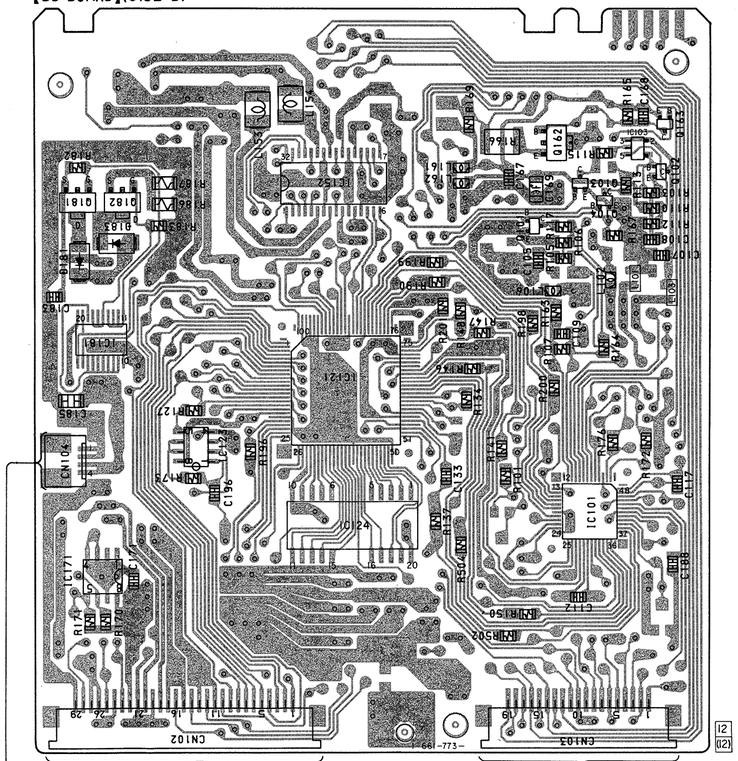
HR901 OVER WRITE HEAD



【BD BOARD】(SIDE A)



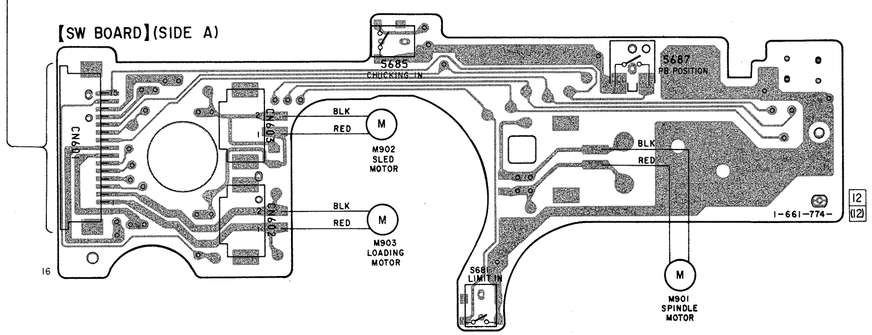
【BD BOARD】(SIDE B)



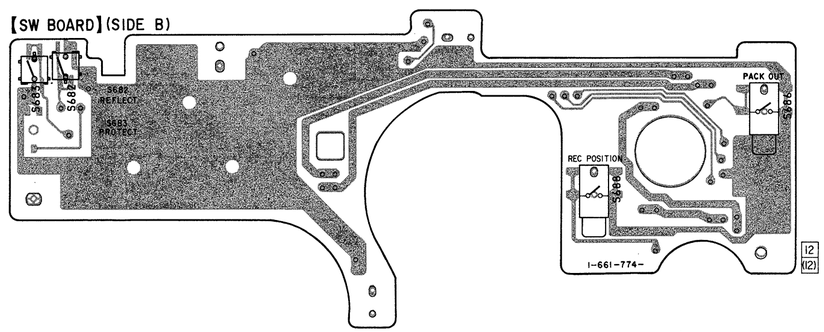
Ⓑ DIGITAL BOARD CN201 (Page 36)

Ⓐ DIGITAL BOARD CN200 (Page 36)

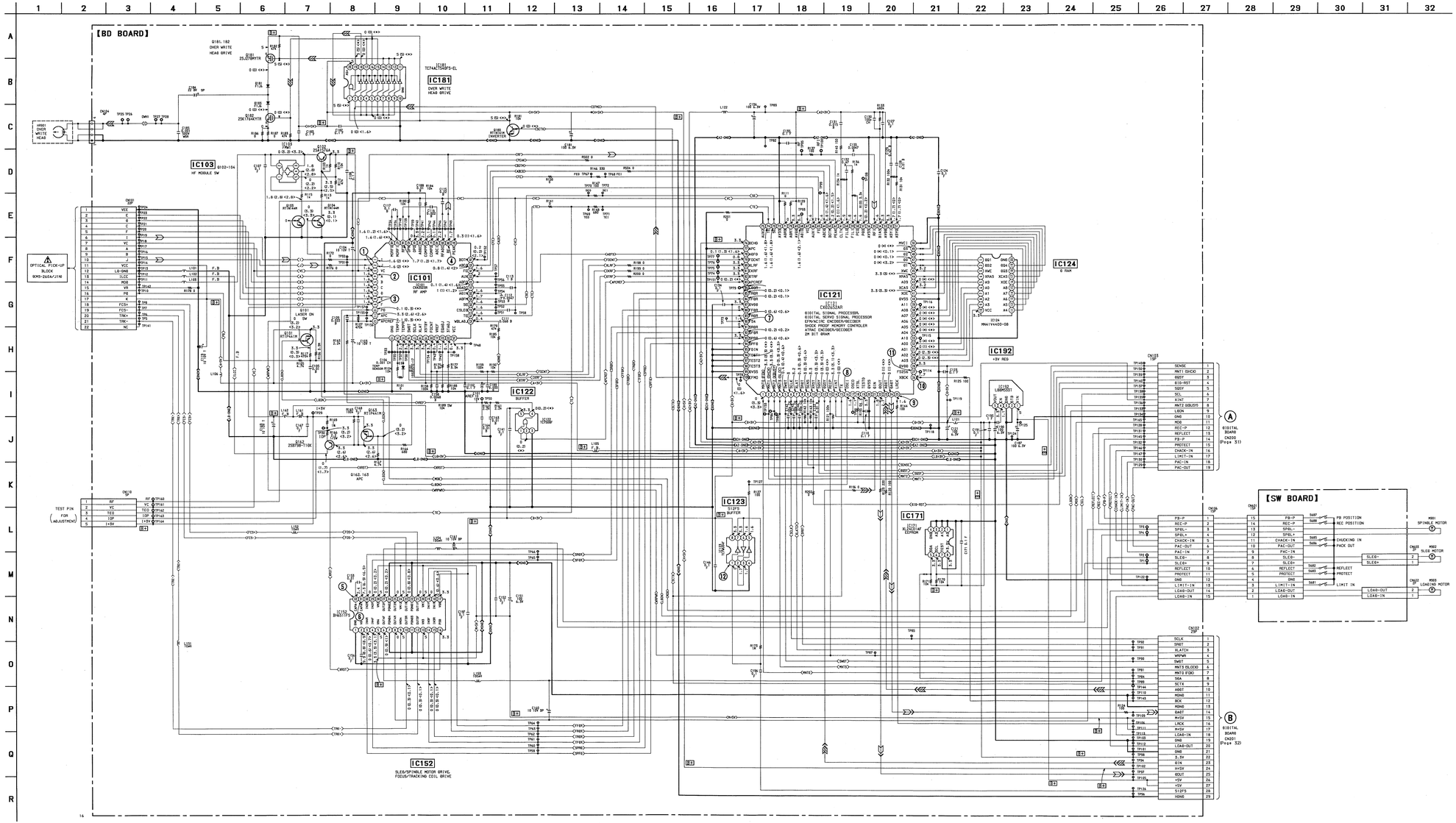
【SW BOARD】(SIDE A)



【SW BOARD】(SIDE B)



6-4. SCHEMATIC DIAGRAM — MD MECHANISM DECK SECTION —



• **Waveforms**
MD MECHANISM DECK SECTION

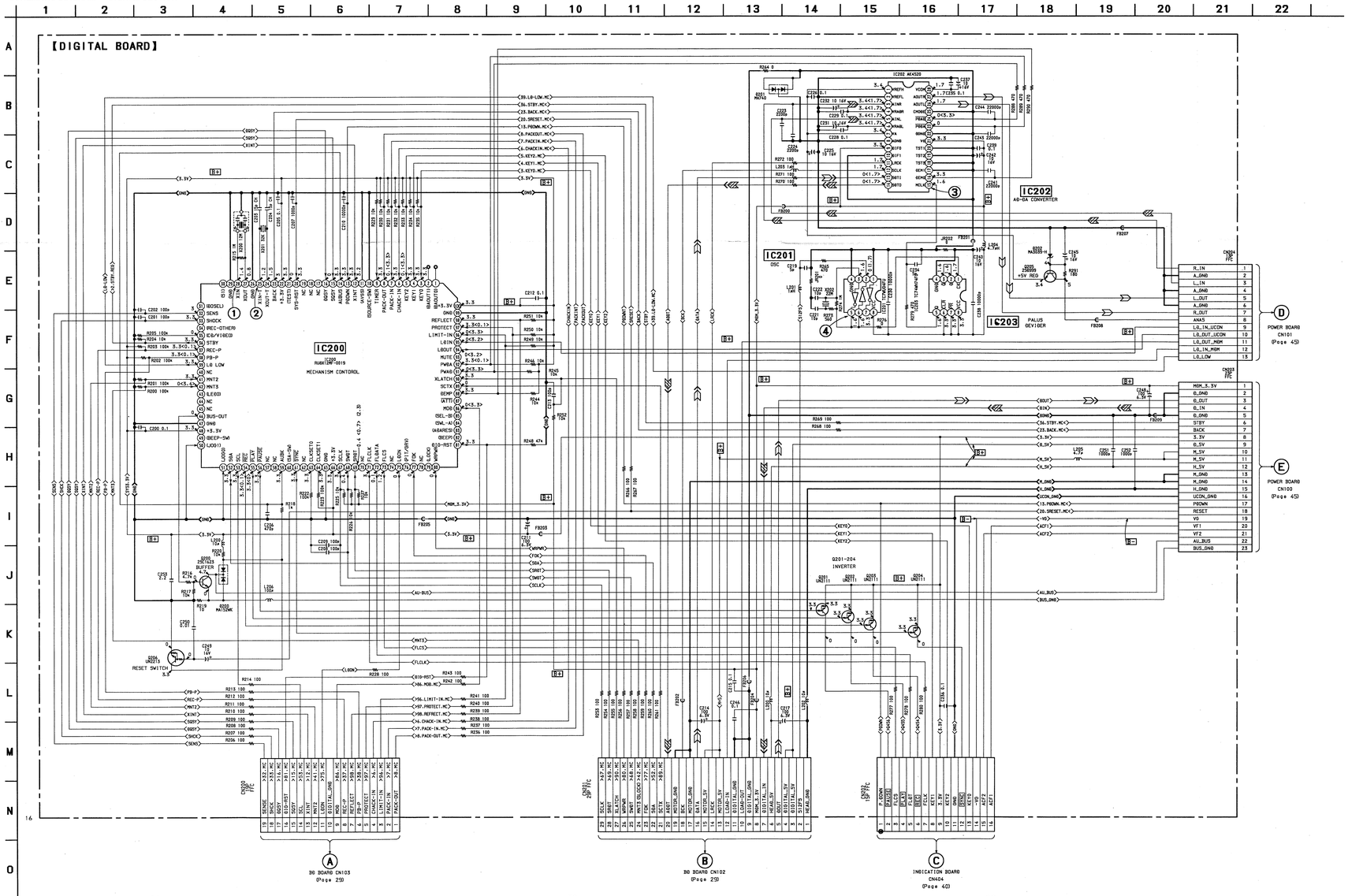
① IC101 ①,② (I,J) (PLAY) Approx. 500 mVp-p	⑤ IC152 ⑫ (CAPA –) 4.6 Vp-p, 1.5 µsec	⑨ IC121 ⑯ (LRCK) 4.0 Vp-p, 44.1 kHz
② IC101 ④ (A) (PLAY) Approx. 200 mVp-p	⑥ IC151 ⑫ (CAPA +) 4.6 Vp-p, 1.5 µsec	⑩ IC121 ⑱ (XBCK) 4.0 Vp-p, 2.8224 MHz
③ IC101 ⑤,⑥ (E,F) (PLAY) Approx. 150 mVp-p	⑦ IC121 ⑮ (FS4) 3.4 Vp-p, 5.7 µsec	⑪ IC121 ⑰ (FS256) 4.0 Vp-p, 11.2896 MHz
④ IC101 ⑩ (RF) (PLAY) 1.2 ± 0.2 Vp-p	⑧ IC121 ⑲ (OSCI) 4.0 Vp-p, 22.5792 MHz	⑫ IC123 ① 1.6 Vp-p, 11.2896 MHz

Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
  ( ) : PLAY
  < > : REC
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : MD PB
  : MD REC
  : MD PB (DIGITAL OUT)
  : MD REC (DIGITAL IN)

6-5. SCHEMATIC DIAGRAM — DIGITAL SECTION —



- **Waveforms**
  DIGITAL SECTION

① IC200 ⑯ XIN

② IC200 ⑰ XIN-T

③ IC202 ⑰ MCLK

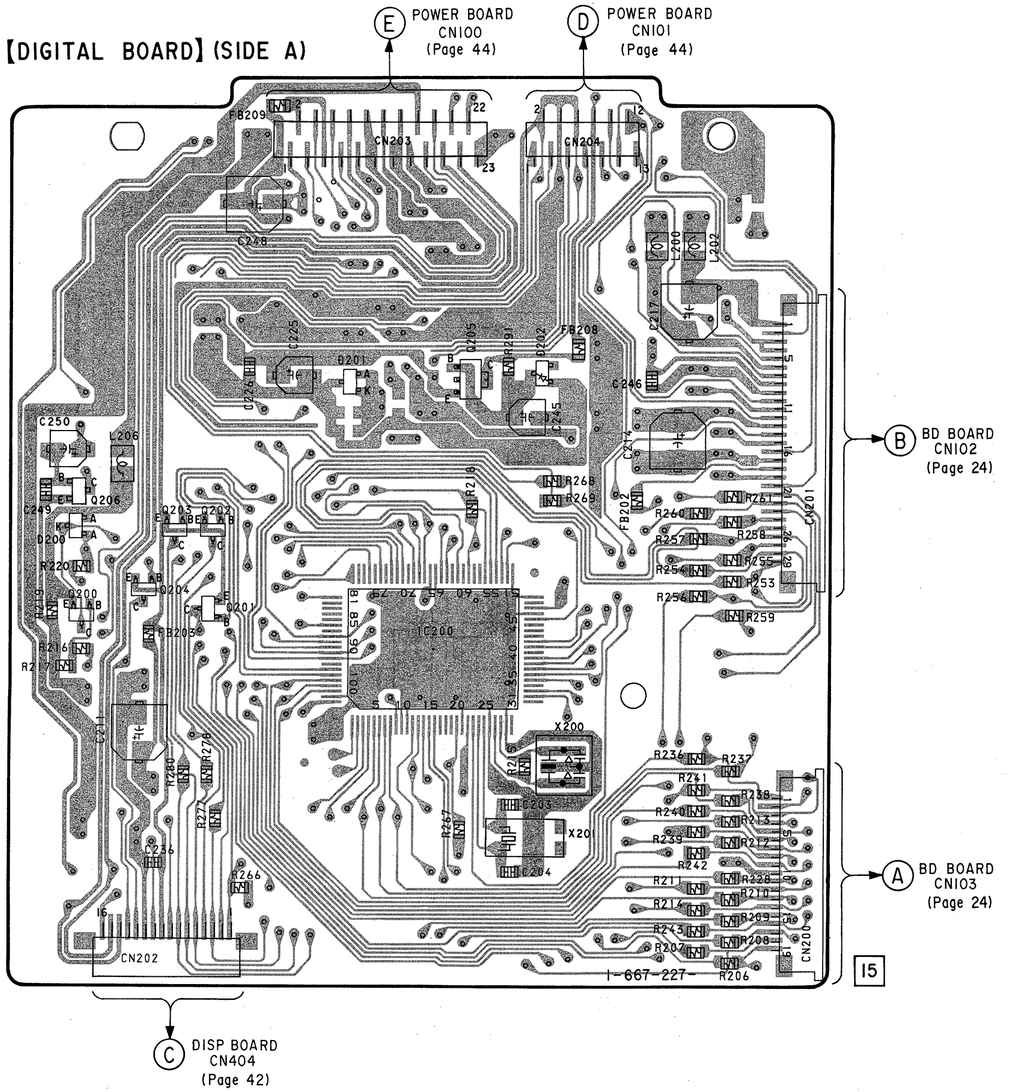
④ IC201 ⑥

Note:

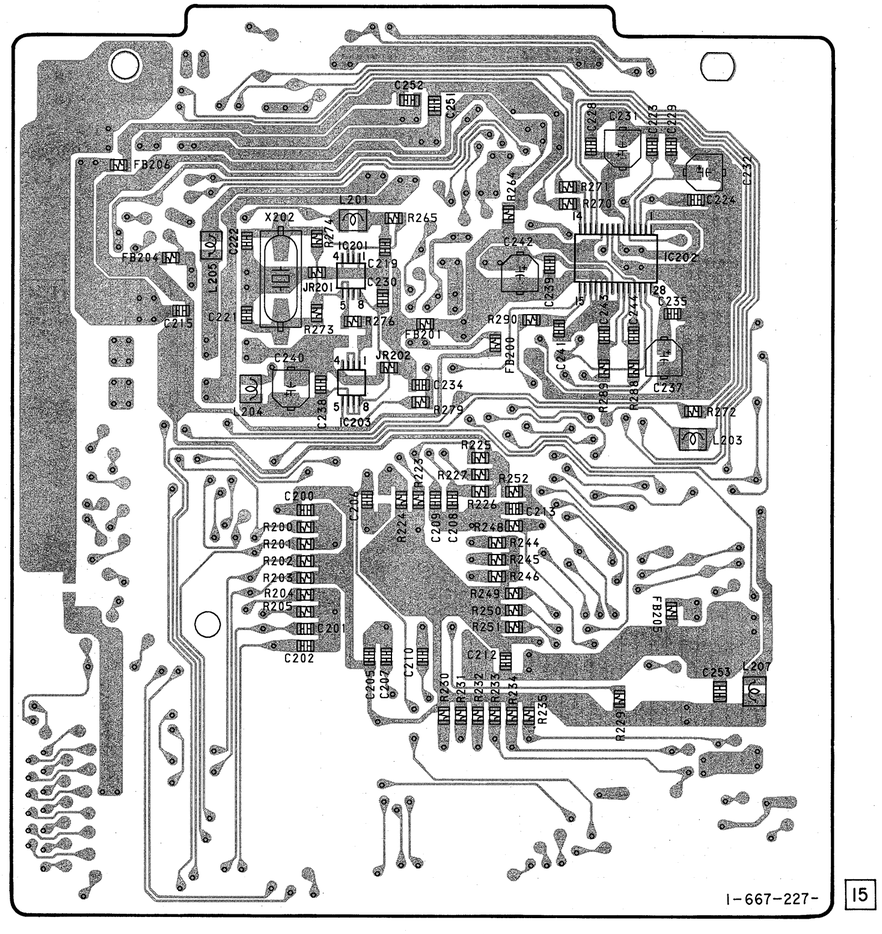
- All capacitors are in μF unless otherwise noted. pF: μμF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ⚠ : internal component.
- B+ : B+ Line.
- B− : B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
  < > : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : MD PB
  : MD REC
  : MD PB (DIGITAL OUT)
  : MD REC (DIGITAL IN)

6-6. PRINTED WIRING BOARD — DIGITAL SECTION —

【DIGITAL BOARD】(SIDE A)



【DIGITAL BOARD】(SIDE B)



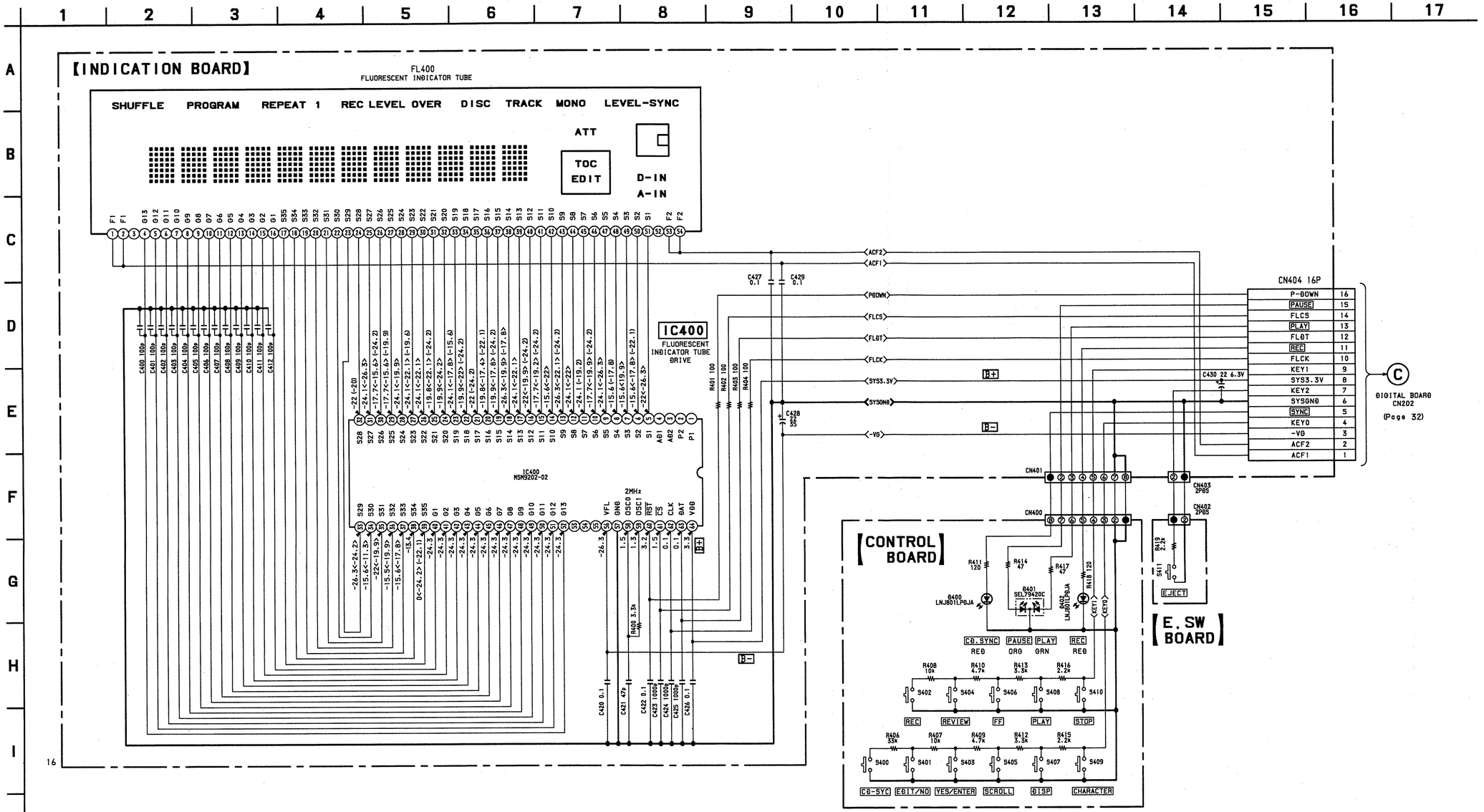
• **Semiconductor Location**

Ref. No.	Location
D200	C-1
D201	C-2
D202	C-3
IC200	D-3
IC201	B-7
IC202	B-9
IC203	C-7
Q200	D-1
Q201	D-2
Q202	C-2
Q203	C-2
Q204	D-1
Q205	C-3

Note:
- ○ : Through hole.
- ▬ : Parts on the side wich is seen.

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

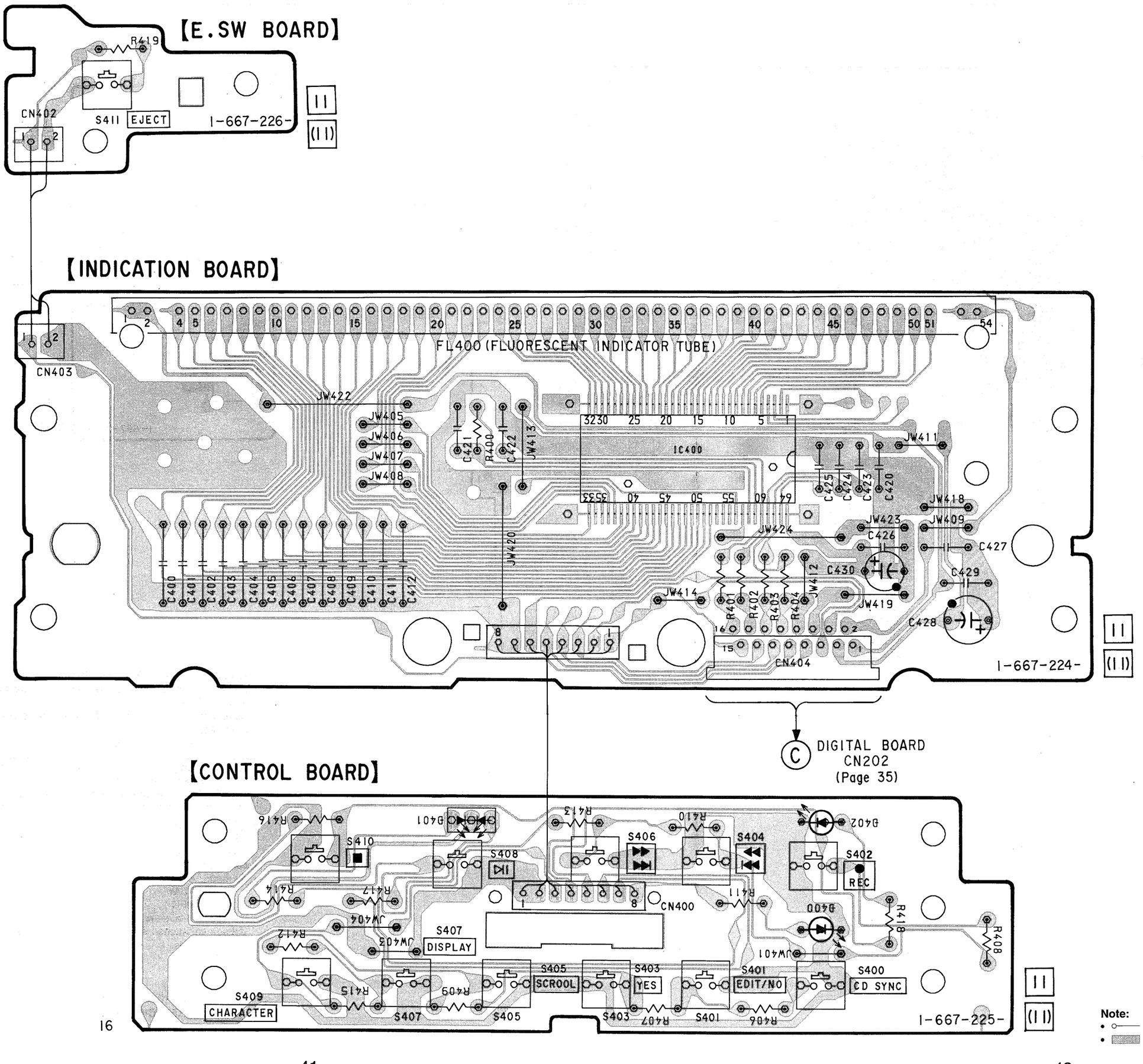
6-7. SCHEMATIC DIAGRAM — DISPLAY SECTION —



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- B+ : B+ Line.
- B− : B− Line.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
  < > : REC

6-8. PRINTED WIRING BOARD — DISPLAY SECTION —

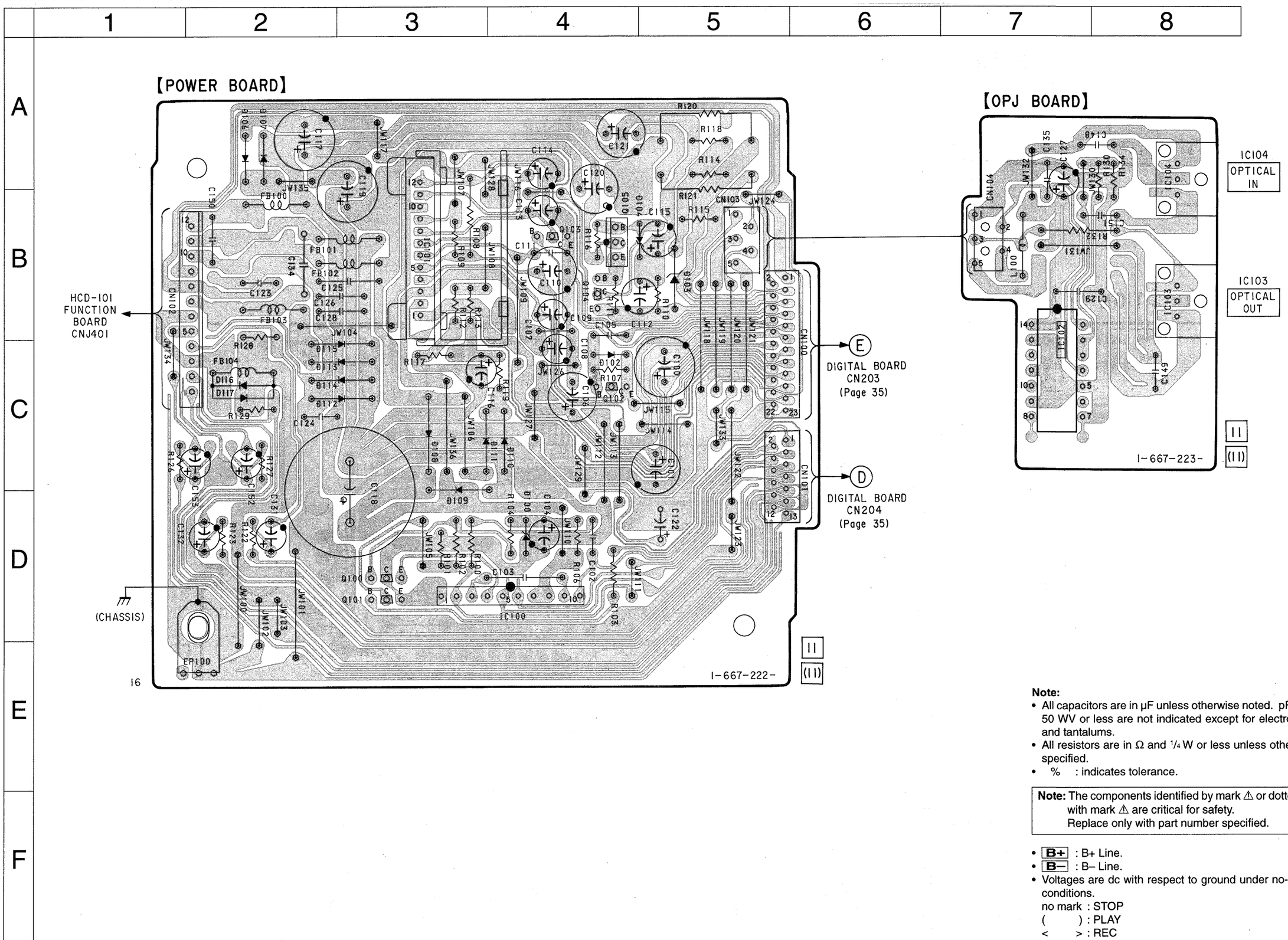


Note:
- ○—— : parts extracted from the component side.
- ▒▒▒ : Parts on the side wich is seen.

6-9. PRINTED WIRING BOARD — POWER SECTION —

• **Semiconductor Location**

Ref. No.	Location
D100	D-4
D102	C-4
D103	B-5
D104	B-5
D106	A-2
D107	A-2
D108	C-3
D109	D-7
D110	C-4
D111	C-4
D112	C-2
D113	C-2
D114	C-2
D115	C-2
D116	C-2
D117	C-2
IC100	D-4
IC101	B-3
IC102	C-7
IC103	B-8
IC104	A-8
Q100	D-3
Q101	D-3
Q102	C-4
Q103	B-4
Q104	B-4
Q105	B-4



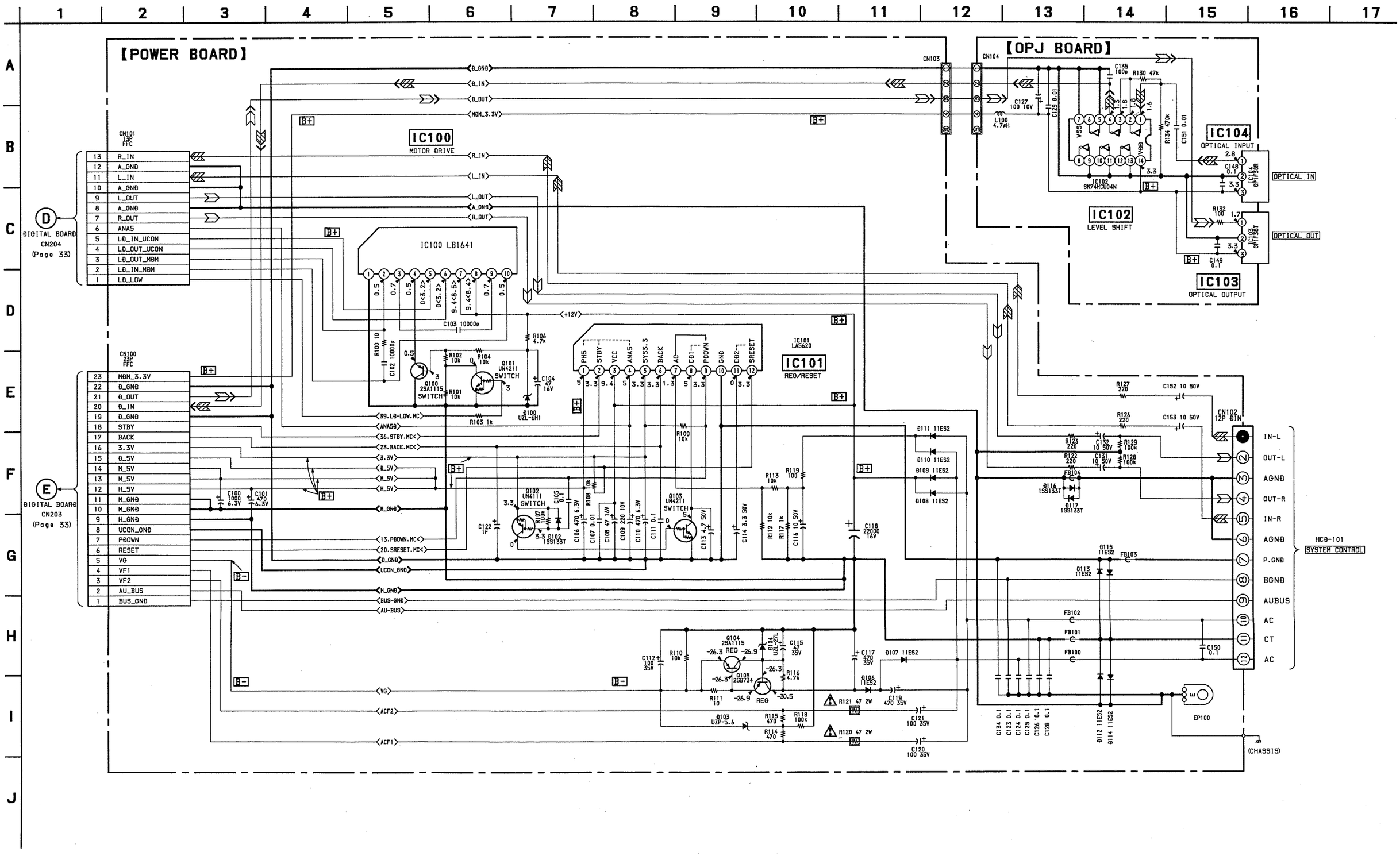
Note:
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ▒▒ : Parts on the side wich is seen.

Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

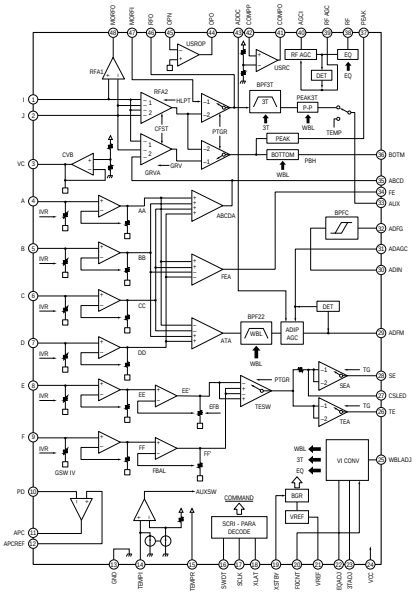
- B+ : B+ Line.
- B– : B– Line.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
  < > : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : MD PB
  : MD REC
  : MD PB (DIGITAL OUT)
  : MD REC (DIGITAL IN)

6-10. SCHEMATIC DIAGRAM — POWER SECTION —

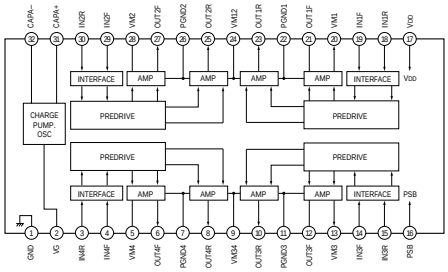


6-11. IC BLOCK DIAGRAMS

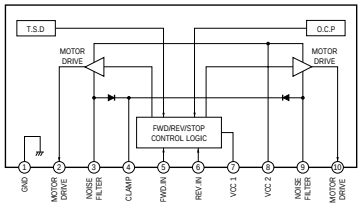
IC101 CXA2523R (BD board)



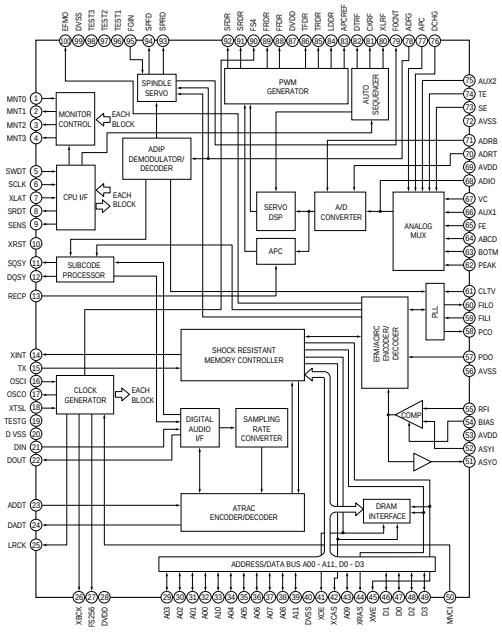
IC152 BH6511FS-ES (BD board)



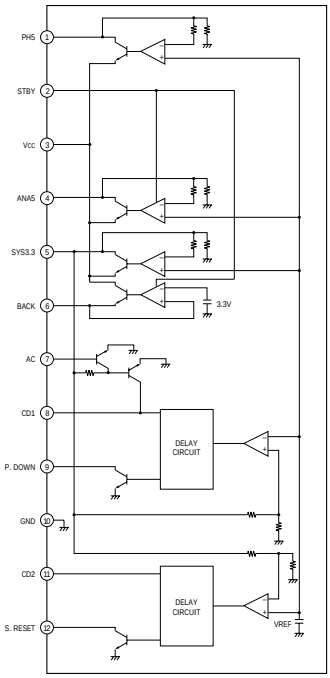
IC100 LB1641 (POWER board)



IC121 CXD2652AR (BD board)



IC101 LA5620 (POWER board)



6-12. IC PIN FUNCTION

• BD BOARD IC101 CXA2523R (RF AMPLIFIER)

Pin No.	Pin Name	I/O	Description
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector (A to F)
10	PD	I	Light amount monitor input terminal
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2652AR (IC121)
17	SCLK	I	Serial clock signal input from the CXD2652AR (IC121)
18	XLAT	I	Serial latch signal input from the CXD2652AR (IC121)
19	XSTBY	I	Standby signal input terminal “L”:standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voitage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121)
21	VREF	O	Reference voltage output terminal (Not used)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05kHz±1kHz) output to the CXD2652AR (IC121)
33	AUX	O	Auxiliary signal (I_3 signal/temperature signal) output to the CXD2652AR (IC121)
34	FE	O	Focus error signal output to the CXD2652AR (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal (Not used)
42	COMPP	I	User comparator input terminal (Not used) (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal (Not used)
45	OPN	I	User operational amplifier inversion input terminal (Not used) (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

- **BD BOARD IC121 CXD2652AR**
  (DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Description
1	FOK	O	Focus OK signal output to the mechanism controller (IC100) “H” is output when focus is on
2	SHCK	O	Track jump detection signal output to the mechanism controller (IC100)
3	XBUSY	O	Monitor 2 signal output to the mechanism controller (IC100)
4	SLOC	O	Monitor 3 signal output to the mechanism controller (IC100)
5	SWDT	I	Writing data signal input from the mechanism controller (IC100)
6	SCLK	I (S)	Serial clock signal input from the mechanism controller (IC100)
7	XLAT	I (S)	Serial latch signal input from the mechanism controller (IC100)
8	SRDT	O (3)	Reading data signal output to the mechanism controller (IC100)
9	SENS	O (3)	Internal status (SENSE) output to the mechanism controller (IC100)
10	XRST	I (S)	Reset signal input from the mechanism controller (IC100) “L”:reset
11	SQSY	O	Subcode Q sync (SCOR) output to the mechanism controller (IC100) “L” is output every 13.3 msec Almost all, :H: is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the mechanism controller (IC100) “L” is output every 13.3 msec Almost all, “H” is output
13	RECP	I	Laser power selection signal input from the mechanism controller (IC100) “H”: recording mode, “L”: playback mode
14	XINT	O	Interrupt status output to the mechanism controller (IC100)
15	TX	I	Recording data output enable signal input from the mechanism controller (IC100) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input from the A/D, D/A converter (IC202)
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal (Not used)
18	XTSL	I	Input terminal for the system clock frequency setting “L”:45.1584MHz, “H”:22.5792MHz (fixed at “H” in this set)
19	TEST G	—	Test pin
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for optical in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for optical out)
23	ADDT	I	Recording data input from the A/D, D/A converter (IC202)
24	DADT	O	Playback data output to the A/D, D/A converter (IC202)
25	LRCK	O	L/R clock signal (44.1kHz) output to the A/D, D/A converter (IC202)
26	XBCK	O	Bit clock signal (2.8224MHz) output to the A/D, D/A converter (IC202)
27	FS256	O	Clock signal (11.2896MHz) output terminal (Not used)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29	A03	O	Address signal output to the external D-RAM
30	A02	O	
31	A01	O	
32	A00	O	
33	A10	O	
34	A04	O	
35	A05	O	
36	A06	O	
37	A07	O	
38	A08	O	
39	A11	O	

* I (A) for analog input, O (3) for 3-state output, I (S) for schmitt input, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Description
40	DVSS	—	Ground terminal (digital system)
41	XOE	O	Output enable signal output to the external D-RAM
42	XCAS	O	Column address strobe signal output to the external D-RAM
43	A09	O	Address signal output to the external D-RAM
44	XRAS	O	Row address strobe signal output to the external D-RAM
45	XWE	O	Write enable signal output to the external D-RAM
46	D1	I/O	Two-way data bus for the external D-RAM
47	D0	I/O	
48	D2	I/O	
49	D3	I/O	
50	MVCI	I (S)	Digital in PLL oscillation input from the external VCO (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
55	RFI	I (A)	Playback EFM RF signal
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM (Not used)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amound signal (RF/ABCD) peak hold input from the CXA2523R (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523R (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523R (IC101)
65	FE	I (A)	Focus error signal (I_3 signal/temperature signal) input from the CXA2523R (IC101)
66	AUXI	I (A)	Auxiliary signal (I_3 signal/temperature signal) input from the CXA2523R (IC101)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523R (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal (Not used)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground system (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523R (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523R (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal (fixed at “L”)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control (fixed at “L”)
78	ADFG	I (S)	ADIP duplex FM signal (22.05kHz±1kHz) input from the CXA2523R (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523R (IC101)
80	XLRF	O	Serial latch signal output to the CXA2523R (IC101)
81	CKRF	O	Serial clock signal output to the CXA2523R (IC101)
82	DTRF	O	Writing data output to the CXA2523R (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control (Not used)

* EFM : Eight to Fourteen Modulation
  PLL : Phase Locked Loop
  VCO : Voltage Controll Oscillator

Pin No.	Pin Name	I/O	Description
85	TRDR	O	Tracking servo drive PWM signal output terminal (–)
86	TFDR	O	Tracking servo drive PWM signal output terminal (+)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal output terminal (+)
89	FRDR	O	Focus servo drive PWM signal output terminal (–)
90	FS4	O	Clock signal (176.4kHz) output terminal (X'tal system) (Not used)
91	SRDR	O	Sled servo drive PWM signal output terminal (–)
92	SFDR	O	Sled servo drive PWM signal output terminal (+)
93	SPRD	O	Spindle servo drive PWM signal output terminal (–)
94	SPFD	O	Spindle servo drive PWM signal output terminal (+)
95	FG IN	I (S)	Spindle CAV servo FG input
96	TEST1	I	Input terminal for the test (fixed at "L")
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

* I (S) of I/O is the Schmitt input.

• DIGITAL BOARD IC200 RU8X12MF-0019 (MECHANISM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	DAOUT0	O	Output terminal for the test. C1 is output when test mode (Not used)
2	DAOUT1	O	Output terminal for the test. ADER is output when test mode (Not used)
3	KEY0	I	Key data, DA input
4	KEY1	I	
5	KEY2	I	
6	CHACK-IN	I	Detection input from the disk push-in detect switch
7	PACK-IN	I	Detection input from the detect switch
8	PACK-OUT	I	Detection input from the loading-out detect switch
9	TIMER	—	(Not used)
10	—	—	(Not used)
11	AVSS	—	Ground terminal
12	XINT	I	Interrupt status input from the CXD2536
13	PDOWN	I	Power down detection signal input terminal “O”:power down
14	AUBUS	I	Audio bus signal. Interrupt input
15	SQSY	I	Subcord Q sync input
16	DQSY	I	Digital In U-bit CD format subcord Q sync input
17	—	—	(Not used)
18	—	—	
19	—	—	
20	SYS-RST	I	System reset signal
21	TEST	I	Ground terminal
22	+3.3V	—	Power supply terminal (+3.3V)
23	BACK	—	Power supply terminal for the backup
24	XOUT-T	O	Sub system clock output terminal (32kHz) for backup detection
25	XIN-T	I	Sub system clock input terminal (32kHz) for backup detection
26	GND	—	Ground terminal
27	XOUT	O	Main system clock output terminal
28	XIN	I	Main system clock input terminal
29	GND	—	Ground terminal
30	—	—	(Not used)
31	—	I	(Not used)
32	SENS	I	Internal status (SENSE) input from the CXD2652R
33	SHOCK	I	Track jump detection signal input
34	—	—	(Not used)
35	CD/VIDEO	—	(Not used)
36	STBY	O	Strobe signal
37	REC P	I	Detection input from the recording position detect switch
38	PB P	I	Detection input from the playback posotion detect switch
39	LD LOW	O	Loading motor voltage control signal output to the loading motor driver
40	—	—	(Not used)
41	MNT2	I	Monitor 2 signal input from the CXD2652R
42	MNT3	I	Monitor 3 signal input from the CXD2652R

Pin No.	Pin Name	I/O	Description
43	—	—	(Not used)
44	—	—	(Not used)
45	—	—	(Not used)
46	BUS-OUT	O	Audio bus output
47	GND	—	Ground terminal
48	+3.3V	—	Power supply terminal (+3.3V)
49	—	—	(Not used)
50	JOG 1	—	(Not used)
51	JOG 0	—	(Not used)
52	SDA	I/O	Two-way data bus for non-volatile memory
53	SCL	O	Clock signal output to non-volatile memory
54	$\overline{\text{REC}}$	O	REC LED
55	$\overline{\text{PLAY}}$	O	PLAY LED
56	$\overline{\text{PAUSE}}$	O	PAUSE LED
57	—	—	(Not used)
58	—	—	(Not used)
59	AUBK	I	Audio bus connection check terminal
60	—	—	(Not used)
61	SYNC	O	CD-SYNC LED
62	—	—	(Not used)
63	CLKSET0	I	Clock destination selected terminal
64	CLKSET1	I	Clock destination selected terminal
65	GND	—	Ground terminal
66	+3.3V	—	Power supply terminal (+3.3V)
67	SCLK	O	Serial clock signal output to the CXD2652AR (IC121) and A/D, D/A converter (IC202)
68	SWDT	O	Writing data output to the CXD2652AR (IC121) and A/D, D/A converter (IC202)
69	$\overline{\text{SRDT}}$	I	Reading data input the CXD2652AR (IC121)
70	—	—	(Not used)
71	FLCLK	O	Serial clock signal output for the FL display
72	FLDATA	O	Serial data output for the FL display
73	FLCS	O	Chip select signal output for the FL display
74	—	—	(Not used)
75	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”:laser on
76	—	—	(Not used)
77	FOK	I	Focus OK signal input
78	—	O	(Not used)
79	—	—	(Not used)
80	WRPWR	O	Laster power select signal output to the CXD2652AR (IC121) “H”:recording mode, “L”:playback mode
81	DIGN.C.RST	O	Reset signal output to the peripheral ICs
82	—	—	(Not used)
83	—	—	(Not used)
84	—	—	(Not used)
85	—	—	(Not used)

Pin No.	Pin Name	I/O	Description
86	MOD	O	Laser modulation select signal output
87	—	—	(Not used)
88	DEMP	O	De-emphasis selection output
89	SCTX	O	Recording data output enable signal output. Laser modulation select signal output
90	XLATCH	O	Serial latch signal output to the CXD2652AR (IC121) and A/D, D/A converter (IC202)
91	PWAD	O	A/D/A selection output
92	PWDA	O	A/D/A selection output
93	—	—	(Not used)
94	LDOUT	O	Motor control signal output to the loading motor driver (IC361)
95	LDIN	O	Motor control signal output to the loading motor driver (IC361)
96	LIMIT.C.IN	I	Detection input from the limit-in detect switch
97	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S683) “H”:write protect
98	REFLECT	I	Detection input from the disc reflection rate detect switch (S682) “L”:high reflection rate disc, “H”:low reflection rate disc
99	GND	—	Ground terminal
100	+3.3V	—	Power supply terminal (+3.3V)

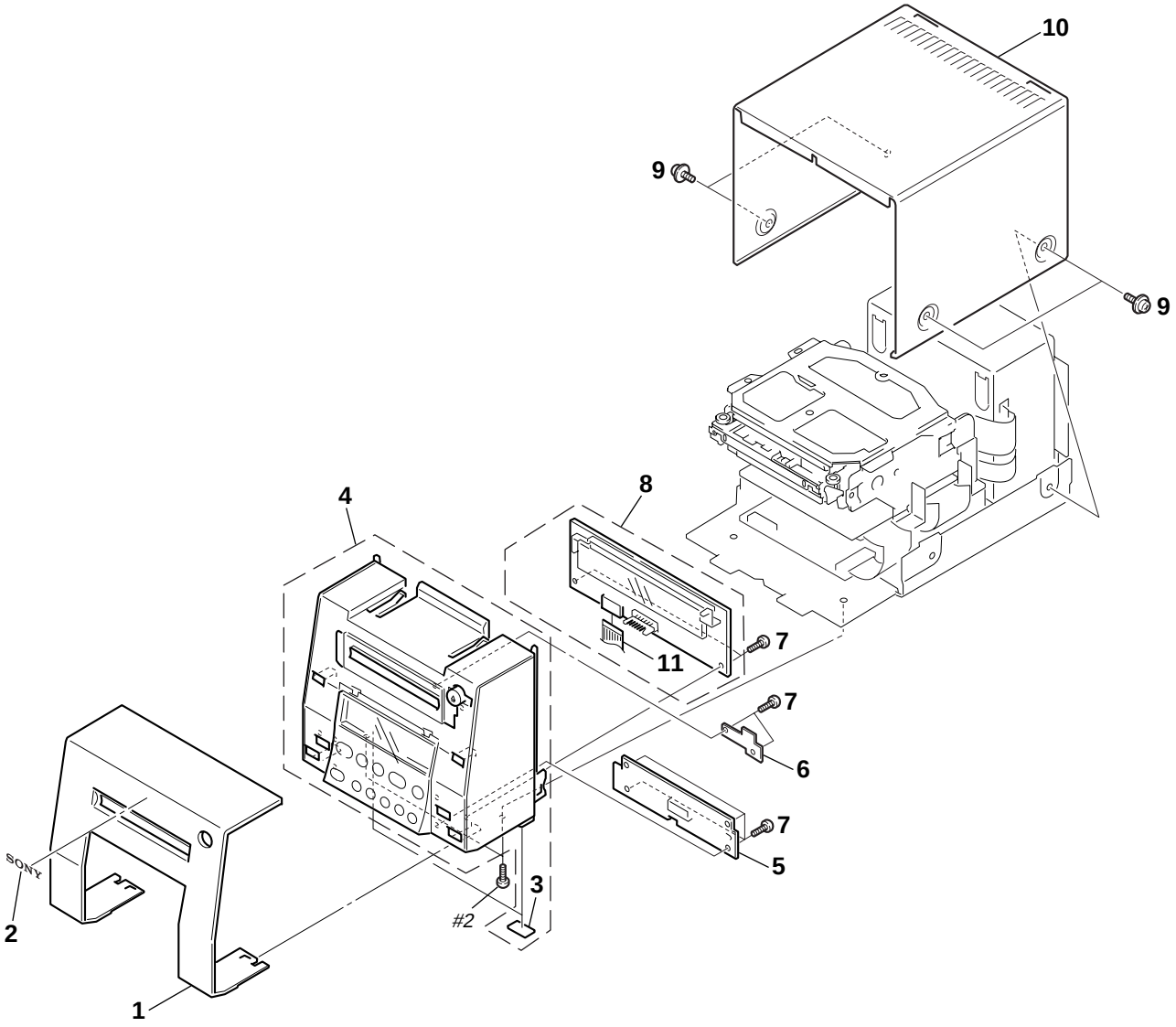
SECTION 7
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

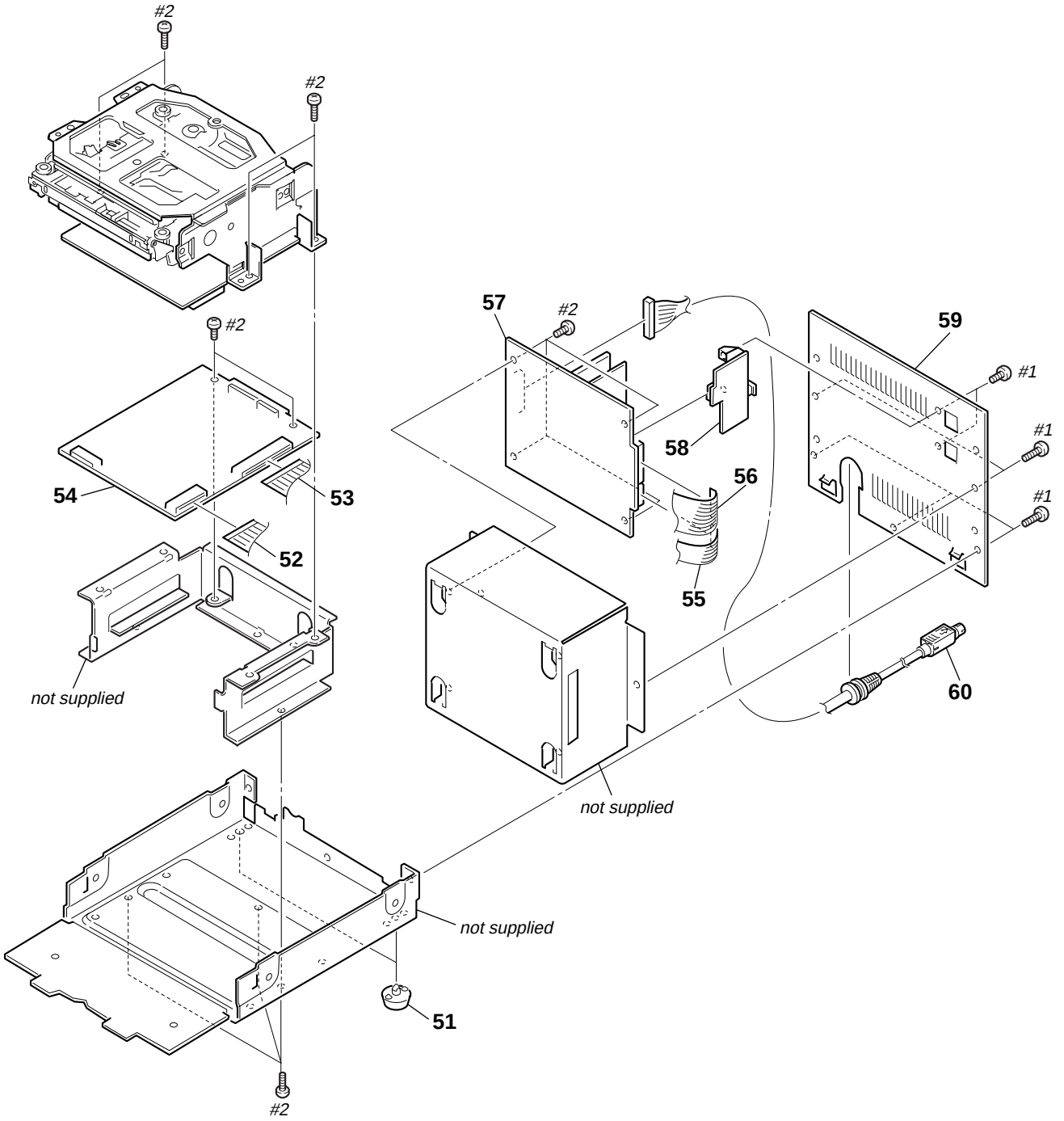
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-1. COVER, FRONT PANEL SECTION



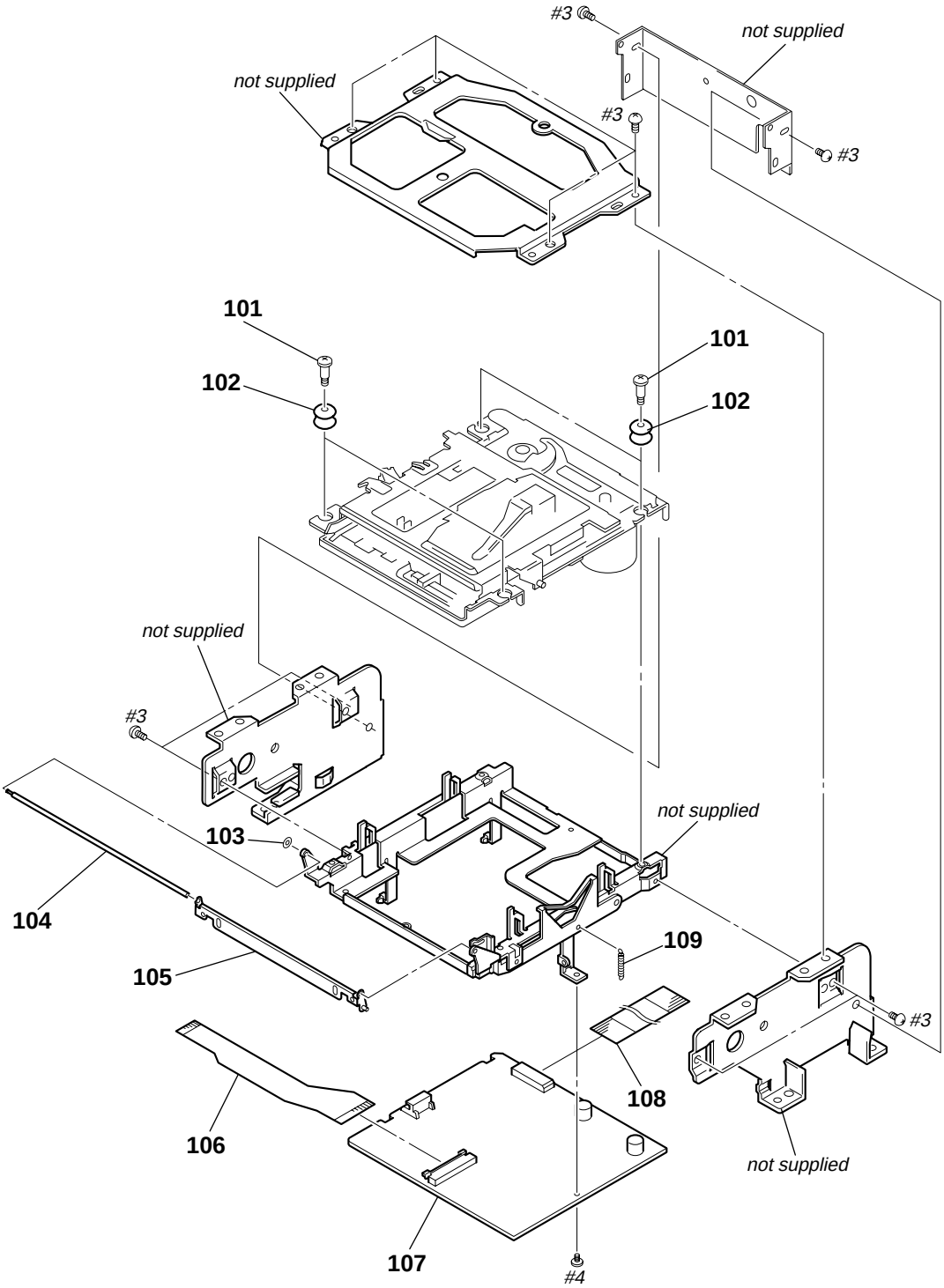
Ref. No.	Part No.	Description	Remarks
1	4-994-706-01	PLATE (MD), ORNAMENTAL	
2	4-942-636-21	EMBLEM (NO.3.5), SONY	
3	4-930-336-61	FOOT (FELT)	
4	X-4948-978-1	PANEL ASSY, FRONT	
* 5	1-667-225-11	CONTROL BOARD	
* 6	1-667-226-11	E.SW BOARD	
7	4-951-620-01	SCREW (2.6X8), +BVTP	
* 8	A-4699-833-A	INDICATION BOARD, COMPLETE	
9	3-704-366-61	SCREW (CASE)	
* 10	4-994-819-31	COVER	
11	1-782-897-11	WIRE (FLAT TYPE) (16 CORE)	

7-2. CHASSIS SECTION



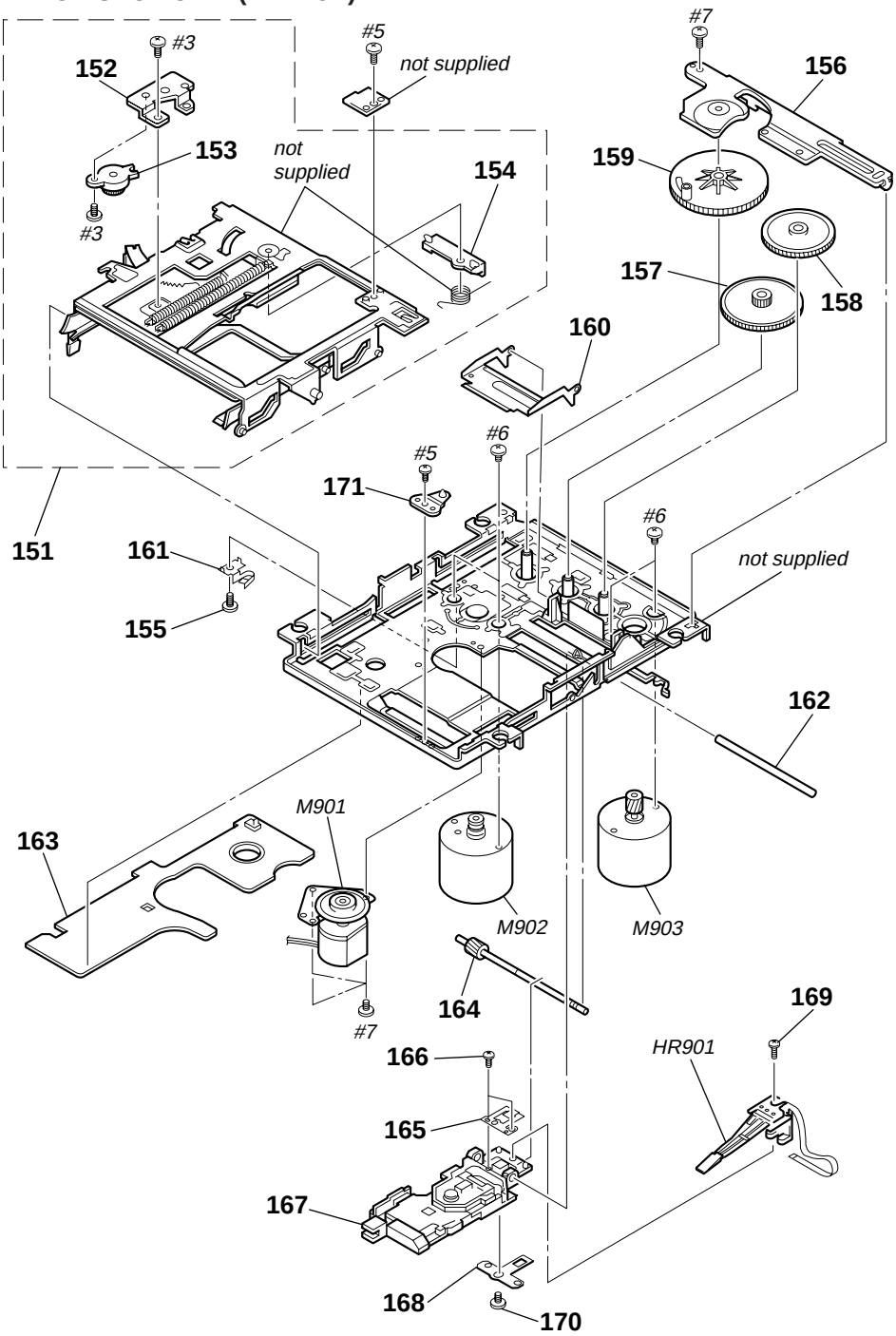
Ref. No.	Part No.	Description	Remarks
51	4-965-822-01	FOOT	
52	1-782-901-11	WIRE (FLAT TYPE) (19 CORE)	
53	1-782-900-11	WIRE (FLAT TYPE) (29 CORE)	
* 54	A-4699-877-A	DIGITAL BOARD, COMPLETE	
55	1-782-899-11	WIRE (FLAT TYPE) (13 CORE)	
56	1-782-898-11	WIRE (FLAT TYPE) (23 CORE)	
* 57	A-4699-876-A	POWER BOARD, COMPLETE	
* 58	1-667-223-11	OPJ BOARD	
* 59	4-994-712-11	PANEL, BACK	
60	1-782-804-11	CORD (WITH CONNECTOR)	

7-3. MECHANISM DECK SECTION-1 (MDM-3B)



Ref. No.	Part No.	Description	Remarks
101	4-628-167-01	SCREW, STEP	
102	4-987-327-01	INSULATOR	
103	4-986-959-01	WASHER, STOPPER	
104	4-987-736-01	SHAFT (SHUTTER)	
105	X-4948-722-1	SHUTTER ASSY	
106	1-660-966-11	PC BOARD, OP RALAY FLEXIBLE	
* 107	A-4699-770-A	BD BOARD, COMPLETE	
108	1-777-517-11	WIRE (FLAT TYPE) (15 CORE)	
109	4-987-910-01	SPRING (O/C), TENSION	

7-4. MECHANISM DECK SECTION-2 (MDM-3B)



Ref. No.	Part No.	Description	Remarks
151	A-4672-138-A	SLIDER COMPLETE ASSY BOARD	
* 152	4-983-439-01	BRACKET (DAMPER)	
153	3-953-235-01	DAMPER, OIL	
* 154	4-983-437-01	SLIDER (CAM)	
155	3-342-375-11	SCREW (M1.7X1.4), SPECIAL	
156	4-979-890-13	RETAINER (GEAR)	
157	4-979-898-01	GEAR (LB)	
158	4-979-899-01	GEAR (LC)	
159	4-979-897-01	GEAR (LA)	
160	4-979-885-01	LEVER (HEAD UP)	
161	4-979-906-11	SPRING (LEAD SCREW)	
162	4-984-556-01	SHAFT (MAIN SHAFT)	
* 163	1-661-774-11	SW BOARD	

Ref. No.	Part No.	Description	Remarks
164	A-3304-200-A	SCREW ASSY, LEAD	
165	4-963-914-02	RACK (INSERTER)	
166	3-366-890-11	SCREW (M1.4)	
⚠ 167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N	
168	4-987-061-01	SPACER (RACK)	
169	4-988-560-01	SCREW (+P 1.7X6)	
170	4-955-841-11	SCREW	
* 171	4-983-511-02	PIN (OUTSERT)	
HR901	1-500-396-11	HEAD, OVER WRITE	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
M902	A-4672-133-A	MOTOR ASSY, SLED	
M903	A-4672-134-A	MOTOR ASSY, LOADING	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

BD

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

Ref. No.	Part No.	Description			Remarks
*	A-4699-770-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C104	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C109	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C110	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C111	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C112	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C115	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C116	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C119	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C128	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C129	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C130	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C131	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C132	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C136	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C143	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C146	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C152	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C153	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C156	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C158	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C160	1-104-601-11	ELECT CHIP	10uF	20%	10V
C161	1-104-601-11	ELECT CHIP	10uF	20%	10V
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C168	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C169	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C184	1-107-836-11	ELECT CHIP	22uF	20%	8V
C185	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C187	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C188	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C189	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C190	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C191	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C195	1-164-346-11	CERAMIC CHIP	1uF		16V
C196	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C197	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P			
CN102	1-778-461-11	CONNECTOR, FFC/FPC 29P			
CN103	1-778-460-11	CONNECTOR, FFC/FPC 19P			
CN104	1-766-898-21	HOUSING, CONNECTOR(PC BOARD)4P			
CN106	1-770-698-11	CONNECTOR, FFC/FPC 15P			
CN110	1-774-731-21	PIN, CONNECTOR (PC BOARD) 5P			
CN400	1-766-928-11	CONNECTOR, BOARD TO BOARD 8P			
		< DIODE >			
D101	8-719-988-62	DIODE 1SS355			
D181	8-719-046-86	DIODE F1J6TP			
D183	8-719-046-86	DIODE F1J6TP			
		< IC >			
IC101	8-752-074-77	IC CXA2523R			
IC103	8-729-903-10	IC TRANSISTOR FMW1			
IC121	8-752-384-47	IC CXD2652AR			
IC122	8-759-234-20	IC TC7S08F			
IC123	8-759-242-70	IC TC7WU04F			
IC124	8-759-473-29	IC MN41V4400SJ-08-T1			
IC152	8-759-430-25	IC BH6511FS-E2			
IC171	8-759-428-58	IC XL24C01AF-E2			
IC181	8-759-095-65	IC TC74ACT540FS			
IC192	8-759-426-95	IC L88MS33T-TL			

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L101	1-414-235-11	INDUCTOR, FERRITE BEAD			
L102	1-414-235-11	INDUCTOR, FERRITE BEAD			
L103	1-414-235-11	INDUCTOR, FERRITE BEAD			
L105	1-414-235-11	INDUCTOR, FERRITE BEAD			
L106	1-414-235-11	INDUCTOR, FERRITE BEAD			
L121	1-414-235-11	INDUCTOR, FERRITE BEAD			
L122	1-414-235-11	INDUCTOR, FERRITE BEAD			
L151	1-412-622-51	INDUCTOR 10uH			
L152	1-412-622-51	INDUCTOR 10uH			
L153	1-412-039-51	INDUCTOR CHIP 100uH			
L154	1-412-039-51	INDUCTOR CHIP 100uH			
L161	1-414-235-11	INDUCTOR, FERRITE BEAD			
L162	1-414-235-11	INDUCTOR, FERRITE BEAD			
		< TRANSISTOR >			
Q101	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR			
Q103	8-729-028-99	TRANSISTOR RN1307-TE85L			
Q104	8-729-028-99	TRANSISTOR RN1307-TE85L			
Q162	8-729-101-07	TRANSISTOR 2SB798-DL			
Q163	8-729-028-91	TRANSISTOR DTA144EUA-T106			
Q180	8-729-028-96	TRANSISTOR RT1N141M-TP-1			
Q181	8-729-018-75	TRANSISTOR 2SJ278MY			
Q182	8-729-017-65	TRANSISTOR 2SK1764KY			
		< RESISTOR >			
R101	1-216-295-91	CONDUCTOR, CHIP (2012)			
R103	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R106	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R107	1-216-113-00	METAL CHIP	470K	5%	1/10W
R109	1-216-295-91	CONDUCTOR, CHIP (2012)			
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-295-91	CONDUCTOR, CHIP (2012)			
R112	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R113	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R115	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R120	1-216-025-91	METAL GLAZE	100	5%	1/10W
R121	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R123	1-216-033-00	METAL CHIP	220	5%	1/10W
R124	1-216-025-91	METAL GLAZE	100	5%	1/10W
R125	1-216-025-91	METAL GLAZE	100	5%	1/10W
R127	1-216-025-91	METAL GLAZE	100	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R133	1-216-117-00	METAL CHIP	680K	5%	1/10W
R134	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R135	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R136	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R137	1-216-025-91	METAL GLAZE	100	5%	1/10W
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R141	1-216-295-91	CONDUCTOR, CHIP (2012)			
R142	1-216-073-00	METAL CHIP	10K	5%	1/10W
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W
R144	1-216-025-91	METAL GLAZE	100	5%	1/10W
R146	1-216-037-00	METAL CHIP	330	5%	1/10W
R147	1-216-025-91	METAL GLAZE	100	5%	1/10W
R148	1-216-045-00	METAL CHIP	680	5%	1/10W
R150	1-216-295-91	CONDUCTOR, CHIP (2012)			
R158	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R159	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R164	1-216-045-00	METAL CHIP	680	5%	1/10W
R165	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R166	1-220-149-11	METAL GLAZE	2.2	10%	1/2W
R167	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R169	1-219-724-11	METAL CHIP	1	1%	1/4W
R170	1-216-073-00	METAL CHIP	10K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-295-91	CONDUCTOR, CHIP (2012)			
R173	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R175	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R176	1-216-295-91	CONDUCTOR, CHIP (2012)			
R177	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R178	1-216-295-91	CONDUCTOR, CHIP (2012)			
R179	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R183	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-073-00	METAL CHIP	10K	5%	1/10W
R186	1-216-296-91	CONDUCTOR, CHIP (3216)			
R187	1-216-296-91	CONDUCTOR, CHIP (3216)			
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-295-91	CONDUCTOR, CHIP (2012)			
R196	1-216-295-91	CONDUCTOR, CHIP (2012)			
R198	1-216-295-91	CONDUCTOR, CHIP (2012)			
R199	1-216-295-91	CONDUCTOR, CHIP (2012)			
R200	1-216-295-91	CONDUCTOR, CHIP (2012)			
R201	1-216-295-91	CONDUCTOR, CHIP (2012)			
R202	1-216-295-91	CONDUCTOR, CHIP (2012)			
R502	1-216-295-91	CONDUCTOR, CHIP (2012)			
R504	1-216-295-91	CONDUCTOR, CHIP (2012)			

****

*	1-667-225-11	CONTROL BOARD
		**********
		< CONNECTOR >
CN400	1-766-928-11	CONNECTOR, BOARD TO BOARD 8P
		< DIODE >
D400	8-719-057-09	DIODE LNJ801LPDJA (CD SYNC)
D401	8-719-056-12	DIODE SML79420C-TP4 (PAUSE/PLAY)
D402	8-719-057-09	DIODE LNJ801LPDJA (REC)

CONTROL DIGITAL

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R406	1-249-435-11	CARBON	33K	5%	1/4W
R407	1-249-429-11	CARBON	10K	5%	1/4W
R408	1-249-429-11	CARBON	10K	5%	1/4W
R409	1-249-425-11	CARBON	4.7K	5%	1/4W F
R410	1-249-425-11	CARBON	4.7K	5%	1/4W F
R411	1-249-406-11	CARBON	120	5%	1/4W F
R412	1-247-843-11	CARBON	3.3K	5%	1/4W
R413	1-247-843-11	CARBON	3.3K	5%	1/4W
R414	1-249-401-11	CARBON	47	5%	1/4W F
R415	1-249-421-11	CARBON	2.2K	5%	1/4W F
R416	1-249-421-11	CARBON	2.2K	5%	1/4W F
R417	1-249-401-11	CARBON	47	5%	1/4W F
R418	1-249-406-11	CARBON	120	5%	1/4W F
		< SWITCH >			
S400	1-762-875-21	SWITCH, KEYBOARD (CD SYNC)			
S401	1-762-875-21	SWITCH, KEYBOARD (EDIT/NO)			
S402	1-762-875-21	SWITCH, KEYBOARD (REC)			
S403	1-762-875-21	SWITCH, KEYBOARD (YES/ENTER)			
S404	1-762-875-21	SWITCH, KEYBOARD (REW)			
S405	1-762-875-21	SWITCH, KEYBOARD (SCROLL)			
S406	1-762-875-21	SWITCH, KEYBOARD (FF)			
S407	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)			
S408	1-762-875-21	SWITCH, KEYBOARD (PLAY)			
S409	1-762-875-21	SWITCH, KEYBOARD (CHARACTER)			
S410	1-762-875-21	SWITCH, KEYBOARD (STOP)			
**********					
*	A-4699-877-A	DIGITAL BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C200	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C201	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C202	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C203	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C204	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C205	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C206	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C207	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C208	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C209	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C210	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C211	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C212	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C213	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C214	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C215	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C217	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C219	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C221	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C222	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C223	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C224	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C225	1-124-779-00	ELECT CHIP	10uF	20%	16V
C226	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C228	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C229	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C230	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C231	1-124-779-00	ELECT CHIP	10uF	20%	16V
C232	1-124-779-00	ELECT CHIP	10uF	20%	16V
C234	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C235	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C236	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C237	1-124-779-00	ELECT CHIP	10uF	20%	16V
C238	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C239	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C240	1-124-779-00	ELECT CHIP	10uF	20%	16V
C241	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C242	1-124-779-00	ELECT CHIP	10uF	20%	16V
C243	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C244	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C245	1-124-779-00	ELECT CHIP	10uF	20%	16V
C246	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C248	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C249	1-124-779-00	ELECT CHIP	10uF	20%	16V
C250	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C251	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C252	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C253	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN200	1-778-460-11	CONNECTOR, FFC/FPC 19P			
CN201	1-778-461-11	CONNECTOR, FFC/FPC 29P			
CN203	1-784-106-11	CONNECTOR (FFC) 23P			
CN204	1-778-274-11	CONNECTOR, FFC/FPC 13P			
		< DIODE >			
D200	8-719-801-78	DIODE 1SS184			
D201	8-719-027-45	DIODE MA740			
D202	8-719-027-82	DIODE MA3039H-TX			
		< FERRITE BEAD >			
FB200	1-414-813-11	INDUCTOR 0UH			
FB201	1-414-813-11	INDUCTOR 0UH			
FB202	1-500-245-11	INDUCTOR 0UH			
FB203	1-500-245-11	INDUCTOR 0UH			
FB204	1-500-245-11	INDUCTOR 0UH			
FB205	1-500-245-11	INDUCTOR 0UH			
FB206	1-500-245-11	INDUCTOR 0UH			
FB207	1-414-551-11	INDUCTOR 0UH			
FB208	1-414-551-11	INDUCTOR 0UH			
FB209	1-500-245-11	INDUCTOR 0UH			
		< IC >			
IC200	8-759-480-95	IC RU8X12MF-0019			
IC201	8-759-096-87	IC TC7WU04FU(TE12R)			
IC202	8-759-471-38	IC AK4520A-VF-E2			
IC203	8-759-447-77	IC TC7WH74FU(TR12R)			
		< JUMPER RESISTOR >			
JR201	1-216-295-91	CONDUCTOR, CHIP (2012)			
JR202	1-216-295-91	CONDUCTOR, CHIP (2012)			

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L200	1-412-029-11	INDUCTOR CHIP	10uH		
L201	1-412-026-11	INDUCTOR CHIP	1uH		
L202	1-412-029-11	INDUCTOR CHIP	10uH		
L203	1-412-026-11	INDUCTOR CHIP	1uH		
L204	1-412-028-11	INDUCTOR CHIP	4.7uH		
L206	1-412-032-11	INDUCTOR CHIP	100uH		
L207	1-412-032-11	INDUCTOR CHIP	100uH		
		< TRANSISTOR >			
Q200	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q201	8-729-424-08	TRANSISTOR	UN2111		
Q202	8-729-424-08	TRANSISTOR	UN2111		
Q203	8-729-424-08	TRANSISTOR	UN2111		
Q204	8-729-424-08	TRANSISTOR	UN2111		
Q205	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q206	8-729-421-19	TRANSISTOR	UN2213		
		< RESISTOR >			
R200	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R201	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R202	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R203	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R206	1-216-025-91	METAL GLAZE	100	5%	1/10W
R207	1-216-025-91	METAL GLAZE	100	5%	1/10W
R208	1-216-025-91	METAL GLAZE	100	5%	1/10W
R209	1-216-025-91	METAL GLAZE	100	5%	1/10W
R210	1-216-025-91	METAL GLAZE	100	5%	1/10W
R211	1-216-025-91	METAL GLAZE	100	5%	1/10W
R212	1-216-025-91	METAL GLAZE	100	5%	1/10W
R213	1-216-025-91	METAL GLAZE	100	5%	1/10W
R214	1-216-025-91	METAL GLAZE	100	5%	1/10W
R215	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R216	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R217	1-216-073-00	METAL CHIP	10K	5%	1/10W
R218	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R219	1-216-001-00	METAL CHIP	10	5%	1/10W
R220	1-216-073-00	METAL CHIP	10K	5%	1/10W
R222	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R223	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R225	1-216-073-00	METAL CHIP	10K	5%	1/10W
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W
R227	1-216-073-00	METAL CHIP	10K	5%	1/10W
R228	1-216-025-91	METAL GLAZE	100	5%	1/10W
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W
R230	1-216-073-00	METAL CHIP	10K	5%	1/10W
R231	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-073-00	METAL CHIP	10K	5%	1/10W
R234	1-216-073-00	METAL CHIP	10K	5%	1/10W
R235	1-216-073-00	METAL CHIP	10K	5%	1/10W
R236	1-216-025-91	METAL GLAZE	100	5%	1/10W
R237	1-216-025-91	METAL GLAZE	100	5%	1/10W
R238	1-216-025-91	METAL GLAZE	100	5%	1/10W
R239	1-216-025-91	METAL GLAZE	100	5%	1/10W
R240	1-216-025-91	METAL GLAZE	100	5%	1/10W
R241	1-216-025-91	METAL GLAZE	100	5%	1/10W
R242	1-216-025-91	METAL GLAZE	100	5%	1/10W
R243	1-216-025-91	METAL GLAZE	100	5%	1/10W
R244	1-216-073-00	METAL CHIP	10K	5%	1/10W
R245	1-216-073-00	METAL CHIP	10K	5%	1/10W
R246	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R249	1-216-073-00	METAL CHIP	10K	5%	1/10W
R250	1-216-073-00	METAL CHIP	10K	5%	1/10W
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R253	1-216-025-91	METAL GLAZE	100	5%	1/10W
R254	1-216-025-91	METAL GLAZE	100	5%	1/10W
R255	1-216-025-91	METAL GLAZE	100	5%	1/10W
R256	1-216-025-91	METAL GLAZE	100	5%	1/10W
R257	1-216-025-91	METAL GLAZE	100	5%	1/10W
R258	1-216-025-91	METAL GLAZE	100	5%	1/10W
R259	1-216-025-91	METAL GLAZE	100	5%	1/10W
R260	1-216-025-91	METAL GLAZE	100	5%	1/10W
R261	1-216-025-91	METAL GLAZE	100	5%	1/10W
R264	1-216-295-91	CONDUCTOR, CHIP (2012)			
R265	1-216-041-00	METAL CHIP	470	5%	1/10W
R266	1-216-025-91	METAL GLAZE	100	5%	1/10W
R267	1-216-025-91	METAL GLAZE	100	5%	1/10W
R268	1-216-025-91	METAL GLAZE	100	5%	1/10W
R269	1-216-025-91	METAL GLAZE	100	5%	1/10W
R270	1-216-025-91	METAL GLAZE	100	5%	1/10W
R271	1-216-025-91	METAL GLAZE	100	5%	1/10W
R272	1-216-025-91	METAL GLAZE	100	5%	1/10W
R273	1-216-043-91	METAL GLAZE	560	5%	1/10W
R274	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R276	1-216-295-91	CONDUCTOR, CHIP (2012)			
R277	1-216-025-91	METAL GLAZE	100	5%	1/10W
R278	1-216-025-91	METAL GLAZE	100	5%	1/10W
R279	1-216-041-00	METAL CHIP	470	5%	1/10W
R280	1-216-025-91	METAL GLAZE	100	5%	1/10W
R288	1-216-041-00	METAL CHIP	470	5%	1/10W
R289	1-216-041-00	METAL CHIP	470	5%	1/10W
R290	1-216-041-00	METAL CHIP	470	5%	1/10W
R291	1-216-031-00	METAL CHIP	180	5%	1/10W
		< VIBRATOR >			
X200	1-579-846-21	VIBRATOR, CERAMIC (12MHz)			
X201	1-760-872-11	VIBRATOR, CRYSTAL (32.768MHz)			
X202	1-767-151-11	VIBRATOR, CRYSTAL (22MHz)			

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*	1-667-226-11	E.SW BOARD			
		**********			
		< RESISTOR >			
R419	1-249-421-11	CARBON	2.2K	5%	1/4W F
		< SWITCH >			
S411	1-762-875-21	SWITCH, KEYBOARD (EJECT)			

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INDICATION | OPJ | POWER

Ref. No.	Part No.	Description			Remarks
*	A-4699-833-A	INDICATION BOARD, COMPLETE			
		**********			
*	4-994-815-01	HOLDER (FL)			
*	4-995-175-01	CUSHION (FL)			
		< CAPACITOR >			
C400	1-162-282-31	CERAMIC	100PF	10%	50V
C401	1-162-282-31	CERAMIC	100PF	10%	50V
C402	1-162-282-31	CERAMIC	100PF	10%	50V
C403	1-162-282-31	CERAMIC	100PF	10%	50V
C404	1-162-282-31	CERAMIC	100PF	10%	50V
C405	1-162-282-31	CERAMIC	100PF	10%	50V
C406	1-162-282-31	CERAMIC	100PF	10%	50V
C407	1-162-282-31	CERAMIC	100PF	10%	50V
C408	1-162-282-31	CERAMIC	100PF	10%	50V
C409	1-162-282-31	CERAMIC	100PF	10%	50V
C410	1-162-282-31	CERAMIC	100PF	10%	50V
C411	1-162-282-31	CERAMIC	100PF	10%	50V
C412	1-162-282-31	CERAMIC	100PF	10%	50V
C420	1-164-159-11	CERAMIC	0.1uF		50V
C421	1-162-215-31	CERAMIC	47PF	5%	50V
C422	1-164-159-11	CERAMIC	0.1uF		50V
C423	1-162-294-31	CERAMIC	0.001uF	10%	50V
C424	1-162-294-31	CERAMIC	0.001uF	10%	50V
C425	1-162-294-31	CERAMIC	0.001uF	10%	50V
C426	1-164-159-11	CERAMIC	0.1uF		50V
C427	1-164-159-11	CERAMIC	0.1uF		50V
C428	1-124-248-00	ELECT	22uF	20%	35V
C429	1-164-159-11	CERAMIC	0.1uF		50V
C430	1-126-153-11	ELECT	22uF	20%	6.3V
		< CONNECTOR >			
CN401	1-774-981-11	CONNECTOR, BOARD TO BOARD 8P			
CN404	1-770-168-11	CONNECTOR, FFC/FPC 16P			
		< FILTER >			
FL400	1-517-706-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC400	8-759-426-98	IC MSM9202-02GS-K			
		< RESISTOR >			
R400	1-247-843-11	CARBON	3.3K	5%	1/4W
R401	1-247-807-31	CARBON	100	5%	1/4W
R402	1-247-807-31	CARBON	100	5%	1/4W
R403	1-247-807-31	CARBON	100	5%	1/4W
R404	1-247-807-31	CARBON	100	5%	1/4W

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Ref. No.	Part No.	Description			Remarks
*	1-667-223-11	OPJ BOARD			
		**********			
		< CAPACITOR >			
C127	1-126-933-11	ELECT	100uF	20%	10V
C129	1-162-306-11	CERAMIC	0.01uF	20%	16V
C135	1-162-282-31	CERAMIC	100PF	10%	50V
C137	1-164-159-11	CERAMIC	0.1uF		50V
C148	1-164-159-11	CERAMIC	0.1uF		50V
C149	1-164-159-11	CERAMIC	0.1uF		50V
C151	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< CONNECTOR >			
CN104	1-750-179-11	SOCKET, CONNECTOR 5P			
		< IC >			
IC102	8-759-917-18	IC SN74HCU04AN			
IC103	8-749-012-69	IC GP1F38T			
IC104	8-749-012-70	IC GP1F38R			
		< COIL >			
L100	1-410-324-11	INDUCTOR 4.7uH			
		< RESISTOR >			
R130	1-249-437-11	CARBON	47K	5%	1/4W
R132	1-247-807-31	CARBON	100	5%	1/4W
R134	1-247-895-00	CARBON	470K	5%	1/4W

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Ref. No.	Part No.	Description			Remarks
*	A-4699-876-A	POWER BOARD, COMPLETE			
		**********			
	7-685-872-09	SCREW +BVTT 3X8 (S)			
		< CAPACITOR >			
C100	1-126-916-11	ELECT	1000uF	20%	6.3V
C101	1-126-935-11	ELECT	470uF	20%	6.3V
C102	1-162-306-11	CERAMIC	0.01uF	20%	16V
C103	1-162-306-11	CERAMIC	0.01uF	20%	16V
C104	1-126-967-11	ELECT	47uF	20%	16V
C105	1-164-159-11	CERAMIC	0.1uF		50V
C106	1-126-935-11	ELECT	470uF	20%	6.3V
C107	1-162-306-11	CERAMIC	0.01uF	20%	16V
C108	1-126-967-11	ELECT	47uF	20%	16V
C109	1-126-923-11	ELECT	220uF	20%	10V
C110	1-126-935-11	ELECT	470uF	20%	6.3V
C111	1-164-159-11	CERAMIC	0.1uF		50V
C112	1-126-948-11	ELECT	100uF	20%	35V
C113	1-126-963-11	ELECT	4.7uF	20%	50V
C114	1-126-962-11	ELECT	3.3uF	20%	50V
C115	1-126-947-11	ELECT	47uF	20%	35V
C116	1-126-964-11	ELECT	10uF	20%	50V
C117	1-111-089-11	ELECT	470uF	20%	35V
C118	1-115-364-11	ELECT	22000uF	20%	16V
C119	1-111-089-11	ELECT	470uF	20%	35V
C120	1-111-082-11	ELECT	100uF	20%	35V
C121	1-111-082-11	ELECT	100uF	20%	35V
C122	1-110-489-11	CAPACITOR	1F		5.5V
C123	1-164-159-11	CERAMIC	0.1uF		50V
C124	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remarks
C125	1-164-159-11	CERAMIC	0.1uF		50V
C126	1-164-159-11	CERAMIC	0.1uF		50V
C128	1-164-159-11	CERAMIC	0.1uF		50V
C131	1-126-964-11	ELECT	10uF	20%	50V
C132	1-126-964-11	ELECT	10uF	20%	50V
C134	1-164-159-11	CERAMIC	0.1uF		50V
C150	1-164-159-11	CERAMIC	0.1uF		50V
C152	1-126-964-11	ELECT	10uF	20%	50V
C153	1-126-964-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
CN100	1-778-688-11	CONNECTOR, FFC/FPC 23P			
CN101	1-779-203-11	CONNECTOR, FFCC/FPC 13P			
CN102	1-564-515-11	PIN, CONNECTOR(PCB)(V TYPE)12P			
CN103	1-750-180-11	PIN, CONNECTOR (PC BOARD) 5P			
		< DIODE >			
D100	8-719-933-39	DIODE HZS6C1L			
D102	8-719-911-19	DIODE 1SS119			
D103	8-719-014-66	DIODE UZP-5.6B			
D104	8-719-934-18	DIODE HZS27-2L			
D106	8-719-200-82	DIODE 11ES2			
D107	8-719-200-82	DIODE 11ES2			
D108	8-719-200-82	DIODE 11ES2			
D109	8-719-200-82	DIODE 11ES2			
D110	8-719-200-82	DIODE 11ES2			
D111	8-719-200-82	DIODE 11ES2			
D112	8-719-200-82	DIODE 11ES2			
D113	8-719-200-82	DIODE 11ES2			
D114	8-719-200-82	DIODE 11ES2			
D115	8-719-200-82	DIODE 11ES2			
D116	8-719-911-19	DIODE 1SS119			
D117	8-719-911-19	DIODE 1SS119			
		< GROUND TERMINAL >			
EP100	1-537-771-21	TERMINAL BOARD, GROUND			
		< FERRITE BEAD >			
FB100	1-410-396-41	INDUCTOR 0.45UH			
FB101	1-410-396-41	INDUCTOR 0.45UH			
FB102	1-410-396-41	INDUCTOR 0.45UH			
FB103	1-410-396-41	INDUCTOR 0.45UH			
FB104	1-410-396-41	INDUCTOR 0.45UH			
		< IC >			
IC100	8-759-822-09	IC LB1641			
IC101	8-759-426-96	IC LA5620			
		< TRANSISTOR >			
Q100	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q101	8-729-900-80	TRANSISTOR DTC114ES			
Q102	8-729-422-57	TRANSISTOR UN4111			
Q103	8-729-900-80	TRANSISTOR DTC114ES			
Q104	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q105	8-729-140-97	TRANSISTOR 2SB734-34			

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R100	1-249-393-11	CARBON	10	5%	1/4W F
R101	1-249-429-11	CARBON	10K	5%	1/4W
R102	1-249-429-11	CARBON	10K	5%	1/4W
R103	1-249-417-11	CARBON	1K	5%	1/4W F
R104	1-249-429-11	CARBON	10K	5%	1/4W
R106	1-249-425-11	CARBON	4.7K	5%	1/4W F
R107	1-249-441-11	CARBON	100K	5%	1/4W
R108	1-249-429-11	CARBON	10K	5%	1/4W
R109	1-249-429-11	CARBON	10K	5%	1/4W
R110	1-249-429-11	CARBON	10K	5%	1/4W
R111	1-249-393-11	CARBON	10	5%	1/4W F
R112	1-249-429-11	CARBON	10K	5%	1/4W
R113	1-249-429-11	CARBON	10K	5%	1/4W
R114	1-249-413-11	CARBON	470	5%	1/4W F
R115	1-249-413-11	CARBON	470	5%	1/4W F
R116	1-249-425-11	CARBON	4.7K	5%	1/4W F
R117	1-249-417-11	CARBON	1K	5%	1/4W F
R118	1-249-441-11	CARBON	100K	5%	1/4W
R119	1-247-807-31	CARBON	100	5%	1/4W
⚠R120	1-215-884-11	METAL OXIDE	47	5%	2W F
⚠R121	1-215-884-11	METAL OXIDE	47	5%	2W F
R122	1-249-409-11	CARBON	220	5%	1/4W F
R123	1-249-409-11	CARBON	220	5%	1/4W F
R126	1-249-409-11	CARBON	220	5%	1/4W F
R127	1-249-409-11	CARBON	220	5%	1/4W F
R128	1-249-441-11	CARBON	100K	5%	1/4W
R129	1-249-441-11	CARBON	100K	5%	1/4W

****

*	1-661-774-11	SW BOARD	
		*********	
		< CONNECTOR >	
CN601	1-770-698-11	CONNECTOR, FFC/FPC 15P	
CN602	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P	
CN603	1-778-638-21	PIN, CONNECTOR (PC BOARD) 2P	
		< SWITCH >	
S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT IN)	
S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)	
S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)	
S685	1-572-467-61	SWITCH, PUSH (1 KEY) (CHACKING IN)	
S686	1-762-621-21	SWITCH, PUSH (1 KEY) (PACK OUT)	
S687	1-572-688-11	SWITCH, PUSH (1 KEY) (PB POSITION)	
S688	1-762-621-21	SWITCH, PUSH (1 KEY) (REC POSITION)	

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**********	
11	1-782-897-11	WIRE (FLAT TYPE) (16 CORE)	
52	1-782-901-11	WIRE (FLAT TYPE) (19 CORE)	
53	1-782-900-11	WIRE (FLAT TYPE) (29 CORE)	
55	1-782-899-11	WIRE (FLAT TYPE) (13 CORE)	
56	1-782-898-11	WIRE (FLAT TYPE) (23 CORE)	
60	1-782-804-11	CORD (WITH CONNECTOR)	
106	1-660-966-11	PC BOARD, OP RALAY FLEXIBLE	
108	1-777-517-11	WIRE (FLAT TYPE) (15 CORE)	
⚠167	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N	
HR901	1-500-396-11	HEAD, OVER WRITE	
M901	A-4672-135-A	MOTOR ASSY, SPINDLE	
M902	A-4672-133-A	MOTOR ASSY, SLED	
M903	A-4672-134-A	MOTOR ASSY, LOADING	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-574-264-11	CORD, OPTICAL PLUG	
**********			

Ref. No.	Part No.	Description	Remarks
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-19	SCREW +BVTP 3X8	
#2	7-685-872-09	SCREW +BVTT 3X8 (S)	
#3	7-685-850-04	SCREW +BVTT 2X3 (S)	
#4	7-685-851-04	SCREW +BVTT 2X4 (S)	
#5	7-627-852-28	SCREW,PRECISION +P 1.7X3	
#6	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
#7	7-627-552-27	SCREW,PRECISION +P 1.7X2	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-920-986-11

Sony Corporation
Home A&V Products Company

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